

*Machinists tools*  
*Armstrong Bros.*



Catalogue B-20

**ARMSTRONG BROS. TOOL CO.**

"THE TOOL HOLDER PEOPLE"  
**CHICAGO., U.S.A.**



# **IMPORTANT**

## **CHANGE IN LIST PRICES**

This B-20 Edition of our Catalogue embodies and makes effective many changes in the List Prices to which your attention is hereby directed.

All previous Editions are withdrawn and should be destroyed.

### **NEW GOODS**

Your attention is also called to the following additions to our line:

Spring Threading Tool . . . . .	Page 27
Knurling Tool (three new sizes) . . . . .	" 31
Bent Tail Heavy Duty Lathe Dogs . . . . .	" 58
Aero Tappet Wrenches . . . . .	" 125
Ford Wrench Sets . . . . .	" 129

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**ARMSTRONG BROS. TOOL CO.**



JOHN ARMSTRONG  
PRESIDENT

PAUL ARMSTRONG  
SECRETARY

HUGH J. ARMSTRONG  
TREASURER

CATALOGUE B-20

# ARMSTRONG BROS. TOOL CO.

MANUFACTURERS OF

## TOOL HOLDERS

For Turning, Boring, Threading, Knurling, Cutting Off  
Planing, Slotting and Drilling Metals

## RATCHET DRILLS

Universal, Short, Packer, Weston and Standard Reversible

## DROP FORGED WRENCHES

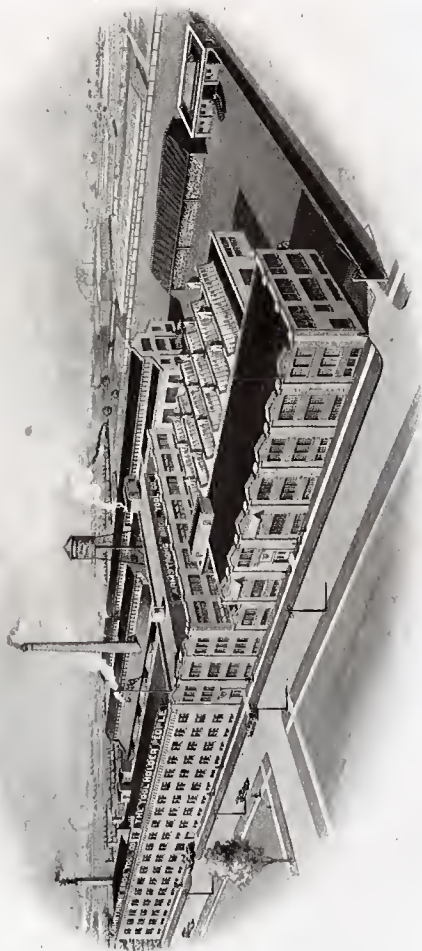
A COMPLETE LINE

LATHE DOGS, CLAMPS, DRILLING POSTS, EYE BOLTS,  
DRILL DRIFTS, DRILL VISES, PLANER JACKS AND  
OTHER MACHINE SHOP SPECIALTIES

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OFFICE AND WORKS  
317-357 NORTH FRANCISCO AVENUE  
CHICAGO, ILL., U. S. A.

CABLE ADDRESS: "STRONGARM" CHICAGO





ARMSTRONG BROS.



TOOL CO., CHICAGO



## GRAND PRIZE WINNERS

At the great PANAMA-PACIFIC EXPOSITION the FIRST and ONLY Grand Prize ever awarded in the class for TOOL HOLDERS was WON by ARMSTRONG TOOL HOLDERS thus confirming the Highest Honors gained at three previous Universal Expositions and the favorable judgement of practical mechanics based upon many years satisfactory service.



Universal Exposition, Paris, 1900  
Two Bronze Medals  
Highest Award



World's Fair, St. Louis, 1904  
Gold Medal  
Highest Award

GRAND PRIZE



Panama-Pacific International  
Exposition, San Francisco, 1915  
The Two Highest Awards  
Conferred

MEDAL OF HONOR



Universal Exposition, Liege, 1905  
Bronze Medal  
Highest Award



Franklin Institute  
Medal of Merit



ARMSTRONG BROS.



TOOL CO., CHICAGO



Trade Mark  
**ARMSTRONG**  
Reg. in U. S. Pat. Off.

## ARMSTRONG PATENTS

Feb. 28, 1893	May 27, 1902	June 7, 1910
March 12, 1895	August 19, 1902	April 30, 1912
April 19, 1898	March 3, 1903	July 8, 1913
Nov. 8, 1898	April 14, 1903	July 14, 1914
Jan. 10, 1899	Dec. 1, 1903	Sept. 5, 1916
Nov. 14, 1899	Jan. 10, 1905	Feb. 6, 1917
August 28, 1900	March 6, 1906	July 10, 1917
Sept. 25, 1900	June 16, 1908	Oct. 9, 1917
Jan. 29, 1901	Nov. 10, 1908	Jan. 1, 1918
May 28, 1901	March 2, 1909	Sept. 3, 1918
March 25, 1902	Oct. 19, 1909	June 15, 1920

Other patents applied for







## PLEASE NOTE

This catalogue B-20 supersedes all previous editions which are hereby withdrawn. Prices are subject to change without notice.

**WHEN ORDERING** specify our catalogue numbers.

**TERMS CASH**—Payable in Chicago par funds. Unless otherwise specified all quotations are based upon delivery free on board cars at Chicago and our responsibility ceases when such delivery is effected.

**DEALERS' CATALOGUES**—Cuts will be furnished free to dealers for use in their catalogues and, if desired, we will aid in preparing copy and correcting proofs; we do not pay for catalogue space.

**PRINTED MATTER FURNISHED DEALERS**—We will furnish a reasonable supply of printed matter free to Dealers who stock Armstrong Tools.

**WEIGHTS**—The weights listed are approximate only and are for convenience in estimating weight of shipments.



## ARMSTRONG TOOL HOLDERS

A COMPLETE, ECONOMICAL AND EFFICIENT SYSTEM OF HIGH SPEED LATHE AND PLANER TOOLS

Heavy loss in time and material is inseparable from the use of forged lathe and planer tools, and this loss has been proportionately increased rather than reduced by the almost universal use of High Speed Steel which has greatly increased the "dead investment" in heavy forged tools, which in many cases are required for occasional use only, while the steel wasted in "stub ends," forging and grinding figures a loss many times greater than was formerly the case with forged tools made of carbon tool steel.

Moreover, the time saved by Armstrong Tool Holders is twice as valuable as it was some years ago. As a result, the saving in time, steel and annoyance effected by Armstrong Tool Holders can hardly be overestimated. They save all forging and most of the grinding as well as much time lost by men going to the tool dresser while their machines stand idle. No stock of heavy tool steel need be carried, and points of various shapes can be kept on the lathe or in the tool room ready for instant use.

Most managers, purchasing agents and practical machinists are recognizing these facts and the many advantages of the Armstrong System, the only system of Tool Holders which is a proved success under widely varying conditions and under the hardest of all tests, twenty-five years of hard, practical use in the World's Machine Shops.

The holders are designed and proportioned on lines which our many years of experience and close study in this, our special field of work, have shown to be correct; they are drop forged from a special steel which combines stiffness and strength to a remarkable degree and are accurately machined, heat treated and hardened.



The set screws are made of treated alloy steel with hardened point and are practically unbreakable.

The cutters for Armstrong Tool Holders are of stock sizes and shapes which are readily obtainable, thus enabling the user to make his cutters from any steel he may prefer, and leaving him independent in choosing his source of supply.

For plants using the Gisholt-Taylor system of tool grinding, we furnish a Grinding Chart for Armstrong Cutters.

The Armstrong Tool Holder System includes tool holders for every operation on the lathe, planer, shaper, slotter, etc., with over one hundred modifications of shape and size, all embodying the same economical and mechanical principle of an inserted cutter in a permanent supporting shank or holder, and adapted to all classes of work from the lightest to the heaviest.

This point is of great importance, as the adoption of even the most economical system of tools is of little practical value to a large concern if its application be limited to a few machines of small size.

When you decide to adopt the Armstrong System, don't stop when you have equipped a few of your small lathes or you will fail to reap the full advantage or to realize fully the economy, convenience and efficiency which a complete equipment will demonstrate.

Remember, that for heavy duty we furnish proportionately larger and stronger tool holders and cutters, and the Armstrong principle is just as efficient and economical in the large tools as in the smaller sizes.

We insist that it is the height of wasteful inefficiency to tie up capital in solid high speed tools when less than one-tenth the amount of steel, if used in Armstrong Tool Holders, will do the work and save time and grinding wheels as well.

**Adopt the Armstrong System—Do it at Once.**



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ONE ARMSTRONG TOOL HOLDER

with a few cutters which can be quickly and cheaply made from the bar by any machinist will do any job on the lathe or shaper; roughing, facing, finishing, corner and fillet work

Effectively Equals  
a Dozen Forged  
Tools



Saves  
All  
Forging

Makes One Pound  
of High Speed  
Tool Steel  
Equal 10 Pounds  
in Forged Tools



## HIGH SPEED CUTTERS FOR ARMSTRONG TOOL HOLDERS

**1—Left Hand  
Turning Tool****2—Round Nose  
Turning Tool****3—Right Hand  
Turning Tool****4—Left Hand  
Corner Tool****5—Threading  
Tool****6—Right Hand  
Corner Tool****7—Left Hand  
Side Tool****8—Square Nose  
Tool****9—Right Hand  
Side Tool****10—Brass  
Tool**

These cutters are made from our best high speed steel; they are heat treated, hardened, ground to the form shown and ready to use.

The prices listed apply to any of the shapes illustrated, When ordering please specify catalog numbers.

Size	Price Each	Size	Price Each
$\frac{3}{16}$ in. square	\$0.25	$\frac{5}{8}$ in. square	\$2.50
$\frac{1}{4}$ " "	.30	$\frac{3}{4}$ " "	4.10
$\frac{5}{16}$ " "	.45	$\frac{7}{8}$ " "	6.00
$\frac{3}{8}$ " "	.65	1 " "	8.60
$\frac{7}{16}$ " "	1.00	$1\frac{1}{8}$ " "	11.90
$\frac{1}{2}$ " "	1.45		

Special cutter forms (or modifications of those shown) if needed will be suggested by the character of the work to be done and the nature of the metal to be machined.

A Grinding Chart showing Settings and Angles for grinding Armstrong Cutters on the Gisholt Tool Grinder will be furnished on request.



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## ARMSTRONG TOOL HOLDERS

Patented

STRAIGHT SHANK



Each Tool Holder is boxed separately and price includes Wrench and one High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
00-S	5/16 x 3/4 x 4 1/2	3/16	1 1/2	\$0.15	\$ 1.80	00-S
0-S	3/8 x 7/8 x 5	1/4	3/4	.20	1.90	0-S
1-S	1/2 x 1 1/8 x 6	5/16	1 1/2	.35	2.15	1-S
2-S	5/8 x 1 3/8 x 7	3/8	2 1/4	.55	2.70	2-S
3-S	3/4 x 1 5/8 x 8	7/16	3 1/2	.90	3.60	3-S
4-S	7/8 x 1 3/4 x 9	1/2	4 3/4	1.30	4.60	4-S
5-S	1 x 2 x 11	5/8	7 1/2	2.35	6.50	5-S
6-S	1 1/4 x 2 1/4 x 13	3/4	12	3.85	9.00	6-S
7-S	1 1/2 x 2 1/2 x 16	7/8	19	5.85	15.00	7-S
750-S	1 5/8 x 2 3/4 x 18	1	26	8.35	22.00	750-S
800-S	1 3/4 x 3 x 20	1 1/8	32	11.35	28.50	800-S

For different forms of finished cutters and price list of same see page 9



ARMSTRONG BROS.



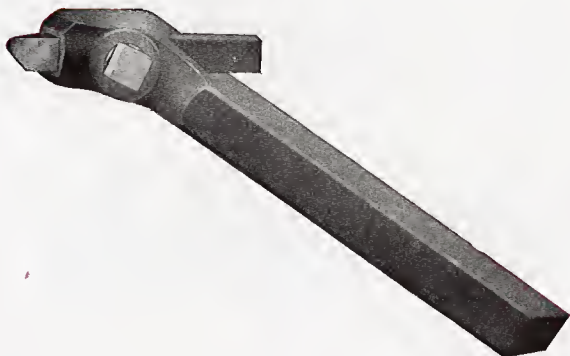
TOOL CO., CHICAGO



## ARMSTRONG TOOL HOLDERS

Patented

Right Hand Off-Set



Each Tool Holder is boxed separately and price includes Wrench and one High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
00-R	5/16x 3/4x 4 1/2	5/16	1 1/2	\$0.15	\$ 1.80	00-R
0-R	3/8x 7/8x 5	1/4	3/4	.20	1.90	0-R
1-R	1/2x 1 1/8x 6	5/16	1 1/2	.35	2.15	1-R
2-R	5/8x 1 3/8x 7	3/8	2 1/4	.55	2.70	2-R
3-R	3/4x 1 5/8x 8	7/16	3 3/4	.90	3.60	3-R
4-R	7/8x 1 3/4x 9	1/2	5	1.30	4.60	4-R
5-R	1 x 2 x 11	5/8	8	2.35	6.50	5-R
6-R	1 1/4x 2 1/4x 13	3/4	13	3.85	9.00	6-R
7-R	1 1/2x 2 1/2x 16	7/8	21	5.85	15.00	7-R
750-R	1 5/8x 2 3/4x 18	1	30	8.35	22.00	750-R
800-R	1 3/4x 3 x 20	1 1/8	35	11.35	28.50	800-R

For different forms of finished cutters and price list of same see page 9.



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## ARMSTRONG TOOL HOLDERS

Patented

Left Hand Off-Set



Each Tool Holder is boxed separately and price includes Wrench and one High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
00-L	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{2}$	\$0.15	\$ 1.80	00-L
0-L	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{1}{4}$	$\frac{3}{4}$	.20	1.90	0-L
1-L	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{5}{16}$	$1\frac{1}{2}$	.35	2.15	1-L
2-L	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{3}{8}$	$2\frac{1}{4}$	.55	2.70	2-L
3-L	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{7}{16}$	$3\frac{3}{4}$	.90	3.60	3-L
4-L	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{1}{2}$	5	1.30	4.60	4-L
5-L	1 x 2 x 11	$\frac{5}{8}$	8	2.35	6.50	5-L
6-L	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{3}{4}$	13	3.85	9.00	6-L
7-L	$1\frac{1}{2} \times 2\frac{1}{2} \times 16$	$\frac{7}{8}$	21	5.85	15.00	7-L
750-L	$1\frac{5}{8} \times 2\frac{3}{4} \times 18$	1	30	8.35	22.00	750-L
800-L	$1\frac{3}{4} \times 3 \times 20$	$1\frac{1}{8}$	35	11.35	28.50	800-L

For different forms of finished cutters and price list of same see page 9.





## ARMSTRONG DROP-HEAD TOOL HOLDERS

Patented

Designed especially for use on lathes of British and European make having clamp tool rest, and American lathes of similar design with high slide rest or low centers. The head and screw are extra heavy and the "goose neck" shape of holder makes it an excellent shaper and planer tool.

### STRAIGHT SHANK



Each Tool Holder is boxed separately and price includes Wrench and One High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Inch Square	Height from Bottom of Shank to Cutter Point Inches	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
100-S	1/2x 5/8x 6	3/16	9/16	3/4	\$0.15	\$1.90	100-S
101-S	5/8x 3/4x 7 1/2	1/4	1 1/16	1 1/4	.20	2.25	101-S
201-S	3/4x 7/8x 8 1/2	5/16	1 3/16	2	.35	2.85	201-S
102-S	7/8x 1 x 9 1/2	3/8	1 5/16	3	.55	3.65	102-S
301-S	1 x 1 1/8x 10 1/2	7/16	1 7/16	4 1/4	.90	4.60	301-S
103-S	1 1/8x 1 1/4x 11 1/2	1/2	1 9/16	6	1.30	5.80	103-S
104-S	1 3/8x 1 1/2x 13 1/2	5/8	1 7/16	10	2.35	8.60	104-S
105-S	1 5/8x 1 3/4x 15 1/2	3/4	1 1/2	16	3.85	13.80	105-S
106-S	1 7/8x 2 x 17 1/2	7/8	1 3/4	23	5.85	20.50	106-S
107-S	2 1/8x 2 1/4x 19 1/2	1	2	31	8.35	27.50	107-S

For different forms of finished cutters and price list of same see page 9.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG DROP-HEAD TOOL HOLDERS

Patented

LEFT HAND OFF-SET



Each Tool Holder is boxed separately and price includes Wrench and one High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Inch Square	Height from Bottom of Shank to Cutter Point Inches	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Com- plete	No.
100-L	1/2 x 5/8 x 6	3/16	9/16	3/4	\$0.15	\$ 1.90	100-L
101-L	5/8 x 3/4 x 7 1/2	1/4	1 1/16	1 1/4	.20	2.25	101-L
201-L	3/4 x 7/8 x 8 1/2	5/16	1 3/16	2	.35	2.85	201-L
102-L	7/8 x 1 x 9 1/2	3/8	1 5/16	3	.55	3.65	102-L
301-L	1 x 1 1/8 x 10 1/2	7/16	1 1/16	4 1/4	.90	4.60	301-L
103-L	1 1/8 x 1 1/4 x 11 1/2	1/2	1 3/16	6	1.30	5.80	103-L
104-L	1 3/8 x 1 1/2 x 13 1/2	5/8	1 5/16	10	2.35	8.60	104-L
105-L	1 3/8 x 1 3/4 x 15 1/2	3/4	1 1/2	16	3.85	13.80	105-L
106-L	1 7/8 x 2 x 17 1/2	7/8	1 3/4	23	5.85	20.50	106-L
107-L	2 1/8 x 2 1/4 x 19 1/2	1	2	31	8.35	27.50	107-L

For different forms of finished cutters and price list of same see page 9.



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TOOL CO., CHICAGO



## ARMSTRONG DROP-HEAD TOOL HOLDERS

Patented

RIGHT HAND OFF-SET



Each Tool Holder is boxed separately and price includes Wrench and one High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Inch Square	Height from Bottom of Shank to Cutter Point Inches	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Com- plete	No.
100-R	1/2x 5/8x 6	3/16	9/16	3/4	\$0.15	\$ 1.90	100-R
101-R	5/8x 3/4x 7 1/2	1/4	11/16	1 1/4	.20	2.25	101-R
201-R	3/4x 7/8x 8 1/2	5/16	13/16	2	.35	2.85	201-R
102-R	7/8x 1 x 9 1/2	3/8	15/16	3	.55	3.65	102-R
301-R	1 x 1 1/8x 10 1/2	7/16	1 1/16	4 1/4	.90	4.60	301-R
103-R	1 1/8x 1 1/4x 11 1/2	1/2	1 3/16	6	1.30	5.80	103-R
104-R	1 3/8x 1 1/2x 13 1/2	5/8	1 5/16	10	2.35	8.60	104-R
105-R	1 5/8x 1 3/4x 15 1/2	3/4	1 1/2	16	3.85	13.80	105-R
106-R	1 7/8x 2 x 17 1/2	7/8	1 3/4	23	5.85	20.50	106-R
107-R	2 1/8x 2 1/4x 19 1/2	1	2	31	8.35	27.50	107-R

For different forms of finished cutters and price list of same see page 9.



## ARMSTRONG ROUND CUTTER TOOL HOLDERS

Patented

The convenience and economy of this tool will recommend it wherever a single tool is required to do a wide variety of lathe and shaper work.

The cutter is round and rake and clearance can be altered instantly by rotating the cutter in its socket. The cutter is held solidly by a tapered tool steel key.



Each Tool Holder is boxed separately and price includes one High Speed Cutter Bit.

No.	Size of Holder Inches	Size of Cutter Round Inches	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
120	$\frac{3}{8} \times \frac{3}{4} \times 5$	$\frac{1}{4}$	$\frac{1}{2}$	\$0.15	\$1.55	120
121	$\frac{1}{2} \times 1 \times 6$	$\frac{5}{16}$	1	.30	1.70	121
122	$\frac{5}{8} \times 1\frac{1}{4} \times 7$	$\frac{3}{8}$	$1\frac{3}{4}$	.50	2.10	122
123	$\frac{3}{4} \times 1\frac{1}{2} \times 8$	$\frac{7}{16}$	$2\frac{3}{4}$	.75	2.80	123
124	$\frac{7}{8} \times 1\frac{5}{8} \times 9$	$\frac{1}{2}$	$3\frac{3}{4}$	1.00	3.65	124
125	$1 \times 1\frac{3}{4} \times 11$	$\frac{5}{8}$	$5\frac{3}{4}$	1.95	4.55	125



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG-STELLITE TOOL HOLDERS

Patent Allowed

STRAIGHT SHANK

This Tool Holder is designed especially for the use of "Stellite" cutters, extra hard High Speed Steel or any alloy metal of such nature as to require large clamping surface, which is obtained by means of a heavy tool steel gib movably set between the cutter and screw point. This feature is combined with the usual Armstrong qualities of great strength and compactness.



Each Tool Holder is boxed separately and price includes Wrench and one No. 2 Grade Stellite Cutter.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Price Each Complete	No.
X 0-S	$\frac{3}{8}$ x $\frac{7}{8}$ x 6	$\frac{1}{4}$	$1\frac{1}{4}$	\$ 3.75	X 0-S
X 1-S	$\frac{1}{2}$ x $1\frac{1}{8}$ x 7	$\frac{5}{16}$	$1\frac{3}{4}$	4.50	X 1-S
X 2-S	$\frac{5}{8}$ x $1\frac{3}{8}$ x 8	$\frac{3}{8}$	3	5.50	X 2-S
X 3-S	$\frac{3}{4}$ x $1\frac{5}{8}$ x 9	$\frac{7}{16}$	$4\frac{1}{2}$	7.50	X 3-S
X 4-S	$\frac{7}{8}$ x $1\frac{3}{4}$ x 10	$\frac{1}{2}$	$6\frac{1}{2}$	10.50	X 4-S
X 5-S	1 x 2 x 12	$\frac{3}{8}$	10	14.50	X 5-S

## STELLITE

Stellite is not steel, but a mixture of chromium, cobalt and other semi-rare metals. It is made in three grades.

Grade No. 1 is the strongest, although less hard than Grade 2 or 3, and is recommended for use on mild steel.

Grade No. 2, which is furnished with the Armstrong-Stellite Tool Holder, is harder than No. 1 Grade. It is adapted for turning steel of point 30 to point 100 carbon, or moderately hard cast iron, and is the grade most suitable for general use.

Grade No. 3 is extra hard. It is higher in price, has high wearing qualities and is recommended for cutting malleable and extra hard cast iron.



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## ARMSTRONG-STELLITE TOOL HOLDERS

Patent Allowed

Left Hand Off-Set



Each Tool is boxed separately and price includes Wrench and one Stellite Cutter of No. 2 Grade.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Price Each Complete	No.
X 0-L	$\frac{3}{8}$ x $\frac{7}{8}$ x 6	$\frac{1}{4}$	$1\frac{1}{4}$	\$ 3.75	X 0-L
X 1-L	$\frac{1}{2}$ x $1\frac{1}{8}$ x 7	$\frac{5}{16}$	$1\frac{3}{4}$	4.50	X 1-L
X 2-L	$\frac{5}{8}$ x $1\frac{3}{8}$ x 8	$\frac{3}{8}$	3	5.50	X 2-L
X 3-L	$\frac{3}{4}$ x $1\frac{5}{8}$ x 9	$\frac{7}{16}$	$4\frac{1}{2}$	7.50	X 3-L
X 4-L	$\frac{7}{8}$ x $1\frac{3}{4}$ x 10	$\frac{1}{2}$	$6\frac{1}{2}$	10.50	X 4-L
X 5-L	1 x 2 x 12	$\frac{5}{8}$	10	14.50	X 5-L

## STELLITE "DON'TS"

Stellite is a cast metal, don't try to forge or temper it. Don't use cooling lubricants, Stellite cuts better when hot.



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TOOL CO., CHICAGO



## ARMSTRONG-STELLITE TOOL HOLDERS

Patent Allowed

Right Hand Off-Set



Each Tool Holder is boxed separately and price includes Wrench and one No. 2 Grade Stellite Cutter.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Price Each Complete	No.
X 0-R	$\frac{3}{8}$ x $\frac{7}{8}$ x 6	$\frac{1}{4}$	$1\frac{1}{4}$	\$ 3.75	X 0-R
X 1-R	$\frac{1}{2}$ x $1\frac{1}{8}$ x 7	$\frac{5}{16}$	$1\frac{3}{4}$	4.50	X 1-R
X 2-R	$\frac{5}{8}$ x $1\frac{3}{8}$ x 8	$\frac{3}{8}$	3	5.50	X 2-R
X 3-R	$\frac{3}{4}$ x $1\frac{5}{8}$ x 9	$\frac{7}{16}$	$4\frac{1}{2}$	7.50	X 3-R
X 4-R	$\frac{7}{8}$ x $1\frac{3}{4}$ x 10	$\frac{1}{2}$	$6\frac{1}{2}$	10.50	X 4-R
X 5-R	1 x 2 x 12	$\frac{5}{8}$	10	14.50	X 5-R

## Directions for Grinding Stellite Cutters

Like all castings the exterior surface of Stellite is hardest, therefore, do not grind into the cutter any deeper than is necessary.

In regrinding the cutter, remove just enough metal to form the proper cutting edge. After grinding, remove the wire edge with an oil stone, to prevent flaking.



## ARMSTRONG BORING TOOLS

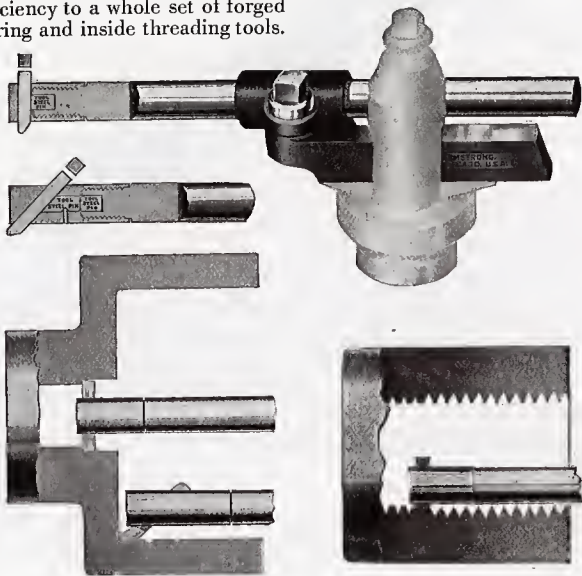
Patented

The convenience and many practical advantages of this system of boring tools are known and appreciated in almost every modern machine shop.

The bar can be extended from the shank or holder to any desired length, giving the greatest degree of stiffness possible on every job.

A half turn of one screw clamps or releases the bar.

The cutters are simply pieces of steel of stock size and shape, and as extra cutters of any desired form can be quickly ground, one of these tools, with a few pieces of steel for cutters, is equal in practical efficiency to a whole set of forged boring and inside threading tools.



The above cut shows Double Ended Cutter roughing out cored hole and also Angle Cutter boring and facing end.

Showing tool cutting a thread





ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG BORING TOOLS

Patented



Each Tool is boxed separately and price includes Holder and Bar, straight and 45 deg. End Caps, two High Speed Cutters and Double Head Wrench.

No.	Size Shank Inches	Diameter Bar Inches	Size Cutter Inch Square	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
00B	5/16 x 3/4	1/2	3/16	1 1/2	\$0.10	\$ 3.25	00B
8	3/8 x 7/8	9/16	3/16	1 3/4	.10	3.25	8
9	1/2 x 1 1/8	3/4	1/4	3 3/4	.18	3.85	9
10	5/8 x 1 3/8	15/16	5/16	6 1/2	.30	5.10	10
11	3/4 x 1 5/8	1 1/8	3/8	11	.50	7.25	11
12	7/8 x 1 3/4	1 5/16	7/16	17	.75	10.75	12
13	1 x 2	1 1/2	1/2	25	1.00	15.00	13



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG BORING TOOLS

Patented

Especially designed for use on lathes of British and European make having clamp tool rest and American lathes of similar design.



Each Tool is boxed separately and price includes Holder and Bar, straight and 45 deg. End Caps, two High Speed Cutters and Double Head Wrench.

No.	Size of Shank Inches	Dimensions of Bar		Size of Cutter Inch Square	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
		Diameter Inches	Length Inches					
108	3/4 x 7/8	9/16	9	3/16	1 1/2	\$0.10	\$ 2.75	108
109	1 x 1 1/8	3/4	11	1/4	3	.18	3.25	109
110	1 1/4 x 1 3/4	15/16	13	5/16	5 1/2	.30	4.35	110
111	1 1/2 x 1 7/8	1 1/8	16	3/8	9	.50	6.25	111
112	1 3/4 x 1 7/8	1 3/16	18	7/16	15	.75	9.00	112
113	2 x 2 1/8	1 1/2	21	1/2	20	1.00	12.00	113
114	2 1/4 x 2 3/8	1 13/16	24	5/8	31	1.80	18.00	114
115	2 3/4 x 2 7/8	2 1/4	30	3/4	57	3.40	30.00	115

## Boring Tools, Less Shank

Price includes Bar with straight and 45 deg. End Caps, two High Speed Cutters, Wrench and Bushing. (No bushing with Nos. 013, 014, 015)

No.	Dimensions of Bar		Size of Cutter Inch Square	With Bushing to Fit Shank	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
	Diameter Inches	Length Inches						
08	1/2	8	3/16	No. 8, 9 or 10	3/4	\$0.10	\$2.00	08
08	9/16	9	3/16	No. 9, 10 or 11	1	.10	2.00	08
09	3/4	11	1/4	No. 10, 11 or 12	2 1/4	.18	2.50	09
010	15/16	13	5/16	No. 11, 12 or 13	4 1/2	.30	3.60	010
011	1 1/8	16	3/8	No. 12 or 13	7	.50	5.00	011
012	1 1/4	18	7/16	No. 13	11	.75	7.00	012
013	1 1/2	21	1/2	Without Bushing	15	1.00	9.00	013
014	1 13/16	24	5/8	Without Bushing	23	1.80	13.00	014
015	2 1/4	30	3/4	Without Bushing	44	3.40	23.00	015

NOTE—In ordering be careful to give size of shank (or number of tool) in which bar is to be used. When this information is not given no bushing will be included.



ARMSTRONG BROS.



TOOL CO., CHICAGO

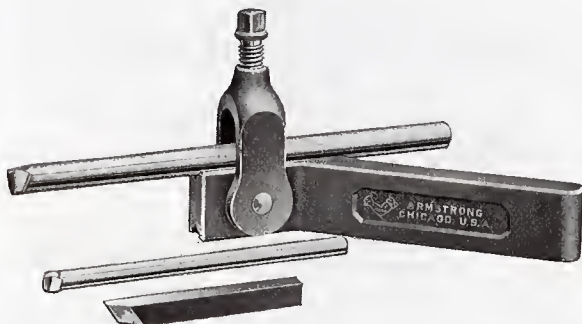


## ARMSTRONG BORING TOOL HOLDER

Patented

For Small, Light Boring, Threading, Etc.

This tool will be found very handy in the Tool Room or in Boring work of small internal diameter, Threading, Brass turning, etc. The Boring Bars furnished are made from the best tool steel properly hardened, tempered and ground ready for use. The Holder is reversible, and can be used for turning either right or left hand.



Each Tool is boxed separately and price includes Holder, Wrench, two Boring Bars and one High Speed Cutter.

No.	Size of Shank Inches	Size of Bars Furnished Diam. Inches	Size of Square Cutter Inch	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
15	$\frac{3}{8} \times \frac{3}{4}$	$\frac{1}{8}$ and $\frac{1}{4}$	$\frac{1}{4}$	1	\$0.20	\$2.75	15
16	$\frac{1}{2} \times 1$	$\frac{3}{16}$ and $\frac{5}{16}$	$\frac{5}{16}$	1 $\frac{3}{4}$	.35	3.50	16
17	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{1}{4}$ and $\frac{3}{8}$	$\frac{3}{8}$	2 $\frac{3}{4}$	.55	4.50	17
18	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{5}{16}$ and $\frac{7}{16}$	$\frac{7}{16}$	4 $\frac{1}{2}$	.90	5.75	18

## Price List of Extra Boring Bars

Diameter.....	$\frac{1}{8}$ in.	$\frac{3}{16}$ in.	$\frac{1}{4}$ in.	$\frac{5}{16}$ in.	$\frac{3}{8}$ in.	$\frac{7}{16}$ in.
Length.....	4 in.	4 $\frac{1}{2}$ in.	5 in.	6 in.	7 in.	8 in.
Price each .....	\$0.20	\$0.25	\$0.30	\$0.40	\$0.55	\$0.75



ARMSTRONG BROS.



TOOL CO., CHICAGO

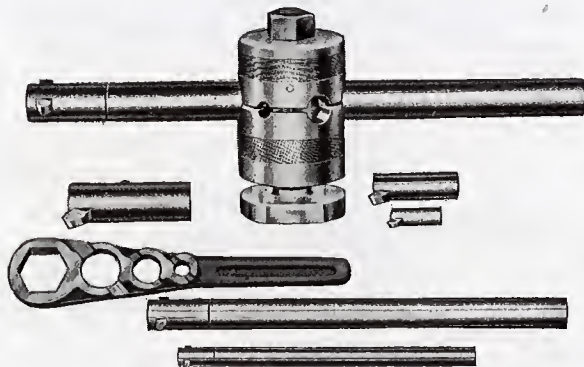


## ARMSTRONG 3-BAR BORING TOOL

Patented

A slight turn of one nut releases or fastens both Bar and Holder.

Bars can be changed as needed almost instantly, thus allowing the operator to use the stiffest bar possible for each job with the result that speeds and feeds can be increased and time saved.



Each Set is boxed separately and price includes Holder, three Armstrong Patent Boring Bars with straight and 45 deg. end caps, six High Speed Cutters and Armstrong Combination Wrench.

No. of Tool	1-B	2-B	3-B	4-B
Price each . . . .	\$15.00	\$20.00	\$35.00	\$50.00
Diameter Bars, In.	$\frac{1}{2}$ , $\frac{3}{4}$ & $1\frac{1}{8}$	$\frac{3}{16}$ , $1\frac{1}{16}$ & $1\frac{1}{2}$	$\frac{3}{4}$ , $1\frac{1}{8}$ & $1\frac{1}{2}$	$1\frac{5}{16}$ , $1\frac{1}{2}$ & $1\frac{13}{16}$
Length of Bars, In.	8, 11 & 16	9, 13 & 18	11, 16 & 21	13, 18 & 24
Size of Cutters, In. Sq	$\frac{3}{16}$ , $\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{16}$ , $\frac{5}{16}$ & $\frac{7}{16}$	$\frac{1}{4}$ , $\frac{3}{8}$ & $\frac{1}{2}$	$\frac{3}{16}$ , $\frac{7}{16}$ & $\frac{5}{8}$
For Lathes Swinging	14 to 16 in.	16 to 18 in.	20 to 22 in.	24 to 32 in.
Weight, Complete Set	18 Pounds	27 Pounds	50 Pounds	75 Pounds

### EXTRA CUTTER BITS—High Speed

Size, Inch Square	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$
Price Each . . . .	\$0.10	\$0.18	\$0.30	\$0.50	\$0.75	\$1.00	\$1.80

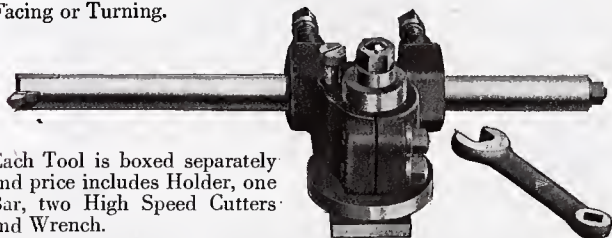
NOTE—Bolt Head and Bottom part of Holder are made of ample size to allow for fitting, which is necessary on account of the great variation in height of centers above slide rest and difference in sizes of T slots. FITTING—An extra charge of \$2.00 net will be made for tools ordered fitted to special dimensions.



## ARMSTRONG ADJUSTABLE BORING TOOL

Patented

This tool combines Convenience, Adjustability and Rigidity to a remarkable degree and is well adapted to a very wide range of work. The Holder is easily adjustable to different heights and will hold bars of various diameters. The Bars are made from high carbon steel seamless tubing of heavy gauge and are extremely stiff. The Cutter can be adjusted and solidly fixed at various angles for Boring, Facing or Turning.



Each Tool is boxed separately and price includes Holder, one Bar, two High Speed Cutters and Wrench.

No.	Capacity of Holder Diameter Bars Inches	Size Bar Furnished Inches	Size Cutter Inch Square	For Lathes Swinging Inches	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Com- plete	No.
212	1/4 to 1 1/16	1 1/16 x 21	3/8	14 to 18	25	\$0.50	\$18.00	212
213	3/8 to 1 1/2	1 1/2 x 24	7/16	16 to 20	38	.75	25.00	213
214	1/2 to 1 13/16	1 13/16 x 28	1/2	18 to 24	75	1.00	40.00	214
215	5/8 to 2 1/4	2 1/4 x 36	5/8	20 to 36	120	1.80	60.00	215

NOTE—Bolt Head is made large enough to allow for fitting to T slots of various sizes.

FITTING—An extra charge of \$1.00 net will be made for fitting Bolt Head to special dimensions.

## Price List—Extra Bars

Price includes one Bar of size specified, two High Speed Cutters and Wrench

Size of Bar			Size Cutter Inch Square	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each
3/4 In. Diam.	14 In. Long					
13/16 " "	16 " "		3/16	1 3/4	\$0.10	\$ 3.25
1 1/8 " "	18 " "		1/4	3 1/4	.18	4.00
1 1/4 " "	21 " "		5/16	5	.30	5.50
1 1/2 " "	24 " "		3/8	7 1/2	.50	7.50
1 3/4 " "	28 " "		7/16	11	.75	10.00
1 7/8 " "	32 " "		1/2	19	1.00	15.00
2 " "	36 " "		5/8	38	1.80	28.00



ARMSTRONG BROS.



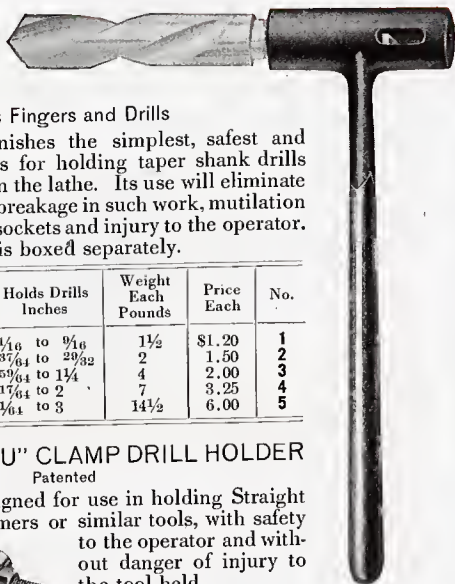
TOOL CO., CHICAGO



## ARMSTRONG SAFETY DRILL HOLDER

Patented

For Holding  
Morse Taper  
Shank  
Drills and  
Reamers



Saves Fingers and Drills

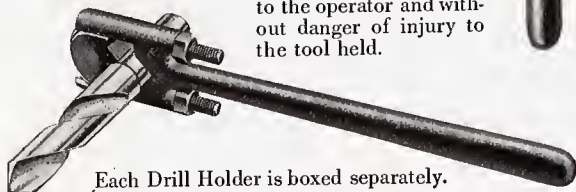
This holder furnishes the simplest, safest and most efficient means for holding taper shank drills when using them on the lathe. Its use will eliminate 90 per cent of drill breakage in such work, mutilation of drill shanks and sockets and injury to the operator. Each Drill Holder is boxed separately.

No.	Size Shank Morse Taper	Holds Drills Inches	Weight Each Pounds	Price Each	No.
1	No. 1	$\frac{1}{16}$ to $\frac{9}{16}$	$1\frac{1}{2}$	\$1.20	1
2	No. 2	$\frac{3}{8}$ to $\frac{29}{32}$	2	1.50	2
3	No. 3	$\frac{5}{8}$ to $1\frac{1}{4}$	4	2.00	3
4	No. 4	$1\frac{1}{8}$ to 2	7	3.25	4
5	No. 5	$2\frac{1}{8}$ to 3	$14\frac{1}{2}$	6.00	5

## ARMSTRONG "U" CLAMP DRILL HOLDER

Patented

This tool is designed for use in holding Straight Shank Drills, Reamers or similar tools, with safety to the operator and without danger of injury to the tool held.



Each Drill Holder is boxed separately.

No.	Capacity Inches	Length Inches	Weight Each Pounds	Price Each	No.
200	$\frac{3}{8}$ to 1	11	$2\frac{1}{4}$	\$1.80	200
300	$\frac{5}{8}$ to $1\frac{1}{2}$	13	4	2.40	300
400	$\frac{7}{8}$ to 2	$15\frac{1}{2}$	7	3.90	400
500	$1\frac{1}{4}$ to 3	18	$13\frac{3}{4}$	5.75	500



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG SPRING THREADING TOOL

Patented

The Armstrong Spring Threading Tool is designed to combine strength and convenience of adjustment and operation with the resiliency which is considered by many machinists to be helpful in obtaining a smooth, finishing cut or thread especially on alloy steels of an extremely tough nature. Convenient means is also provided for obtaining complete rigidity when same is desirable as, for instance, in taking a roughing cut or doing an ordinary job of turning. The cutter can be held at different angles as shown.



Each tool is boxed separately, and price includes one High Speed V Thread Cutter and a Drop Forged Wrench.

No.	Size of Holder Inches	Size of Cutter Inch Square	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
S - 50	$\frac{3}{8}$ x $\frac{7}{8}$ x $5\frac{1}{2}$	$\frac{8}{16}$	$\frac{1}{2}$	\$0.25	\$3.00	S - 50
S - 51	$\frac{1}{2}$ x $1\frac{1}{8}$ x $6\frac{1}{2}$	$\frac{1}{4}$	1	.30	3.75	S - 51
S - 52	$\frac{5}{8}$ x $1\frac{3}{8}$ x $7\frac{1}{2}$	$\frac{5}{16}$	2	.45	4.75	S - 52
S - 53	$\frac{3}{4}$ x $1\frac{5}{8}$ x $8\frac{1}{2}$	$\frac{3}{8}$	$3\frac{1}{4}$	.65	6.00	S - 53



## ARMSTRONG THREADING TOOLS

Patented

A Threading Tool is essentially a forming tool and any error or inaccuracy of shape or angle in the tool point will surely be reproduced in the thread and must result in poorly fitted work.

The cutters used in the Armstrong Threading Tool require grinding on the top edge only, to sharpen, and therefore always remain true to form and of correct angle; its use thus insures perfect fitting threads, and saves much grinding, as well as dispensing entirely with forging and tempering. The cutters are backed off to afford proper clearance. The back of cutter is excentric in form and bears upon a hardened stop screw. This arrangement allows of positive and accurate adjustment.



Each Tool is boxed separately and price includes Wrench and a Single Point Cutter, V, U. S. or Whitworth Standard.

No.	Size of Holder Inches	Weight Each Pounds	Price Each Complete		No.
			With Carbon Steel Cutter*	With High Speed Cutter	
00T	5/16 x 3/4 x 5	3/4	\$2.25	\$2.75	00T
50	3/8 x 7/8 x 5	7/8	2.25	2.75	50
51	1/2 x 1 1/8 x 6	1 1/2	2.75	3.35	51
52	5/8 x 1 3/8 x 7	2 1/4	3.50	4.25	52
53	3/4 x 1 5/8 x 8	3 1/2	4.50	5.50	53
54	7/8 x 1 3/4 x 9	4 1/4	5.50	6.50	54
55	1 x 2 x 10	6 1/4	7.00	8.25	55

NOTE—In ordering tools equipped with U. S. or Whitworth cutters be careful to specify pitch or number of threads per inch wanted. Tools equipped with single point Sharp V cutter will always be shipped unless otherwise ordered.

Tools with High Speed steel cutters will be sent if carbon steel cutter is not specified.

\*Carbon steel cutters are not intended or adapted for cutting at high speeds and are not guaranteed against drawing of temper.





## CUTTERS FOR ARMSTRONG THREADING TOOL

Grinding and Adjusting Cutters. Always grind the cutter on a line from the point to the center, as



indicated by the dotted lines in the accompanying outline view of cutter, then adjust the cutter so that the newlyground cutting edge represented by dotted lines is in a horizontal position or parallel to the line A. A. When fastening the cutter in position first see that Adjusting Screw is firmly set against heel of cutter, before pulling up nut.



Chaser Cutter

## List of Cutters Furnished

We make and carry in stock single point and chasing cutters in both Carbon and Treated High Speed Steel, to cut the pitches listed beneath in Sharp V, Whitworth and U. S. Standard, except as noted. For table of Standard pitches and diameters see next page.

Single Point Cutters	No. 00T and 50	All standard pitches, 6 to 20, inclusive
	“ 51	“ “ “ 5 to 20, “
	“ 52	“ “ “ 4 to 20, “
	“ 53, 54 and 55	“ “ “ 3 to 20, “
Chaser Cutters	No. 00T and 50	14, 16, 18, 20, 24*
	“ 51	11½*, 12, 13†, 14, 16, 18, 20, 24*
	“ 52	8, 9, 10, 11, 11½*, 12, 13†, 14, 16, 18, 20
	“ 53 and 54	8, 9, 10, 11, 11½*, 12, 13†, 14, 16, 18, 20
	*V Thread only. †Not made in Whitworth.	

## PRICE LIST OF CUTTERS

Sharp V, Whitworth or U. S. Standard Shape

For Tool No.	00T and 50		51		52		53 and 54		55
Made From	Single Point	Chaser	Single Point	Chaser	Single Point	Chaser	Single Point	Chaser	Single Point Only
Carbon Steel*	\$1.25	\$1.75	\$1.50	\$2.25	\$2.00	\$3.00	\$2.50	\$3.75	\$3.00
High Speed Steel	1.75	2.75	2.10	3.35	2.75	4.25	3.50	5.00	4.25

NOTE—When ordering cutters or chasers (except single point V cutters) it is necessary to specify exact pitch or number of threads per inch.

High Speed Cutters will be shipped unless otherwise specified.

\*Carbon Cutters are not guaranteed against drawing of temper.



## THREAD FORMULAE

WITH TABLES OF STANDARD DIAMETERS AND PITCHES

UNITED  
STATES  
STANDARD  
THREAD

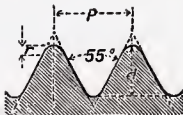
$$\text{Formula} \left\{ \begin{array}{l} p = \text{pitch} = \frac{1}{\text{No. threads per in.}} \\ d = \text{depth} = p \times .64952 \\ f = \text{flat} = \frac{p}{8} \end{array} \right.$$

Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.
1/4	20	3/4	10	1 5/8	5 1/2	2 1/2	4	3 3/8	3 1/4
5/16	18	7/8	9	1 3/4	5	2 3/8	4	3 1/2	3 1/4
3/8	16	1	8	1 1/8	5	2 3/4	4	3 3/8	3 1/4
7/16	14	1 1/8	7	2	4 1/2	2 7/8	3 1/2	3 3/4	3
1/2	13	1 1/4	7	2 1/8	4 1/2	3	3 1/2	3 7/8	3
9/16	12	1 3/8	6	2 1/4	4 1/2	3 1/8	3 1/2	4	3
5/8	11	1 1/2	6	2 3/8	4	3 1/4	3 1/2	...	...

SHARP  
"V"  
THREAD

$$\text{Formula} \left\{ \begin{array}{l} p = \text{pitch} = \frac{1}{\text{No. threads per in.}} \\ d = \text{depth} = p \times .86603 \end{array} \right.$$

Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.
1/4	20	3/4	10	1 1/2	6	2 1/2	4	3 1/2	3 1/4
5/16	18	13/16	10	1 5/8	5	2 5/8	4	3 5/8	3 1/4
3/8	16	7/8	9	1 3/4	5	2 3/4	4	3 3/4	3
7/16	14	15/16	9	1 7/8	4 1/2	2 7/8	4	3 7/8	3
1/2	12	1	8	2	4 1/2	3	3 1/2	4	3
9/16	12	1 1/8	7	2 1/8	4 1/2	3 1/8	3 1/2	...	...
5/8	11	1 1/4	7	2 1/4	4 1/2	3 1/4	3 1/2	...	...
1 1/16	11	1 3/8	6	2 3/8	4 1/2	3 3/8	3 1/4	...	...

WHITWORTH  
STANDARD  
THREAD

$$\text{Formula} \left\{ \begin{array}{l} p = \text{pitch} = \frac{1}{\text{No. threads per in.}} \\ d = \text{depth} = p \times .64033 \\ r = \text{radius} = p \times .1373 \end{array} \right.$$

Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.	Diam. Inches	Threads per In.
1/4	20	3/4	10	1 1/2	6	2 1/2	4	3 1/2	3 1/4
5/16	18	13/16	10	1 5/8	5	2 5/8	4	3 5/8	3 1/4
3/8	16	7/8	9	1 3/4	5	2 3/4	3 1/2	3 3/4	3
7/16	14	15/16	9	1 7/8	4 1/2	2 7/8	3 1/2	3 7/8	3
1/2	12	1	8	2	4 1/2	3	3 1/2	4	3
9/16	12	1 1/8	7	2 1/8	4 1/2	3 1/8	3 1/2	...	...
5/8	11	1 1/4	7	2 1/4	4	3 1/4	3 1/2	...	...
1 1/16	11	1 3/8	6	2 3/8	4	3 3/8	3 1/4	...	...



## ARMSTRONG KNURLING TOOL

Patented

This Tool is self centering and the knuckle or joint has ample bearing to resist the severe strains of both end and side thrust. In these essentials the Armstrong Knurling Tool is unexcelled. The knurls and pins are accurately made of Tool Steel suitably tempered. All other parts are Drop Forged or Bar Steel, hardened.



No.	Size Inches	Dimensions of Knurls Inches			Weight Each Pounds	Extra Knurls Per Pair	Price Each Com- plete	No.
		Diam.	Face*	Hole				
00-K	$\frac{5}{16}$ x $\frac{3}{4}$ x 5	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{5}{8}$	\$0.65	\$3.75	00-K
0-K	$\frac{3}{8}$ x $\frac{7}{8}$ x $5\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{16}$	$\frac{7}{32}$	$\frac{7}{8}$	.65	4.00	0-K
1-K	$\frac{1}{2}$ x $1\frac{1}{8}$ x $6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$1\frac{1}{2}$	.75	4.50	1-K
2-K	$\frac{5}{8}$ x $1\frac{3}{8}$ x $7\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	2	.75	6.00	2-K

\*Knurls with full width face ( $\frac{5}{16}$  in. wide for No. 00-K and 0-K;  $\frac{3}{8}$  in. wide for No. 1-K and 2-K) can be furnished at prices listed when required and so specified.

Tools will be sent equipped with Medium Diamond Knurls unless otherwise specified.

For pitch or form of knurls furnished see page 32.



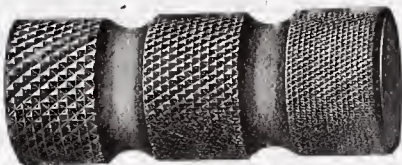
## ARMSTRONG KNURLING TOOL

WITH REVOLVING HEAD

The advantages of this tool are apparent at a glance. The revolving head is fitted with three pairs of knurls, fine, medium and coarse, either of which can be used without the inconvenience and loss of time incident to changing knurls.



No.	Size Inches	Dimensions of Knurls Inches			Weight Each Ponnds	Extra Knurls Per Pair	Price Each Com- plete	No.
		Diam.	Face	Hole				
3-K	$\frac{1}{2} \times 1\frac{1}{8} \times 6\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	2	\$0.75	\$6.00	3-K



Coarse  
14 Pitch

Medium  
21 Pitch

Fine  
33 Pitch

Knurls can be turned coarse, medium and fine in either straight line or Diamond pattern.

Illustration shows full size Diamond Knurling; medium Diamond Pattern Knurls will always be sent if not otherwise specified.



## ARMSTRONG CUTTING-OFF TOOLS

Patented

In no other form of forged lathe tool is the proportionate cost of maintenance compared with effective work done so great as in the cutting-off tool; consequently in this class of work the Armstrong system is especially effective and economical.

As the cutter is adjustable to any desired clearance, the greatest possible support is obtainable under all conditions.

The cutters are beveled on both sides and are held at an angle giving the side clearance and top rake needed to obtain a clean, smooth cut.<sup>o</sup>

## STRAIGHT SHANK CUTTING-OFF TOOL



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Holder Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
19	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{3}{8} \times \frac{1}{2}$	$\frac{1}{2}$	\$0.60	\$1.90	19
20	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{3}{8} \times \frac{5}{8}$	$\frac{3}{4}$	.65	2.00	20
21	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{1}{8} \times \frac{3}{4}$	$1\frac{1}{4}$	.90	2.40	21
22	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{1}{8} \times \frac{7}{8}$	$2\frac{1}{4}$	1.30	3.00	22
23	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{3}{16} \times 1$	$3\frac{1}{4}$	2.15	4.00	23
24	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{3}{16} \times 1\frac{1}{8}$	$4\frac{1}{2}$	2.90	5.00	24
25	$1 \times 2 \times 10$	$\frac{1}{4} \times 1\frac{1}{4}$	$6\frac{1}{2}$	4.00	6.50	25
26	$1\frac{1}{4} \times 2\frac{1}{4} \times 11$	$\frac{1}{4} \times 1\frac{3}{8}$	9	4.65	7.75	26



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG CUTTING-OFF TOOLS

Patented

RIGHT HAND OFF-SET



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Shank Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High-Speed Each	Price Each Complete	No.
29-R	$\frac{5}{16} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{1}{2}$	$\frac{5}{8}$	\$0.60	\$1.90	29-R
30-R	$\frac{3}{8} \times \frac{7}{8}$	$\frac{3}{32} \times \frac{5}{8}$	$\frac{3}{4}$	.65	2.00	30-R
31-R	$\frac{1}{2} \times 1\frac{1}{8}$	$\frac{1}{8} \times \frac{3}{4}$	$1\frac{1}{2}$	.90	2.40	31-R
32-R	$\frac{5}{8} \times 1\frac{3}{8}$	$\frac{1}{8} \times \frac{7}{8}$	$2\frac{1}{4}$	1.30	3.00	32-R
33-R	$\frac{3}{4} \times 1\frac{5}{8}$	$\frac{3}{16} \times 1$	$3\frac{1}{2}$	2.15	4.00	33-R
34-R	$\frac{7}{8} \times 1\frac{3}{4}$	$\frac{3}{16} \times 1\frac{1}{8}$	$4\frac{3}{4}$	2.90	5.00	34-R
35-R	1 x 2	$\frac{1}{4} \times 1\frac{1}{4}$	$6\frac{3}{4}$	4.00	6.50	35-R
36-R	$1\frac{1}{4} \times 2\frac{1}{4}$	$\frac{1}{4} \times 1\frac{3}{8}$	9	4.65	7.75	36-R



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG CUTTING-OFF TOOLS

Patented

## LEFT HAND OFF-SET



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Shank Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
29-L	$\frac{5}{16} \times \frac{3}{4}$	$\frac{3}{32} \times \frac{1}{2}$	$\frac{5}{8}$	\$0.60	\$1.90	29-L
30-L	$\frac{3}{8} \times \frac{7}{8}$	$\frac{3}{32} \times \frac{5}{8}$	$\frac{3}{4}$	.65	2.00	30-L
31-L	$\frac{1}{2} \times 1\frac{1}{8}$	$\frac{1}{8} \times \frac{3}{4}$	$1\frac{1}{2}$	.90	2.40	31-L
32-L	$\frac{5}{8} \times 1\frac{3}{8}$	$\frac{1}{8} \times \frac{7}{8}$	$2\frac{1}{4}$	1.30	3.00	32-L
33-L	$\frac{3}{4} \times 1\frac{5}{8}$	$\frac{3}{16} \times 1$	$3\frac{1}{2}$	2.15	4.00	33-L
34-L	$\frac{7}{8} \times 1\frac{3}{4}$	$\frac{3}{16} \times 1\frac{1}{8}$	$4\frac{3}{4}$	2.90	5.00	34-L
35-L	1 x 2	$\frac{1}{4} \times 1\frac{1}{4}$	$6\frac{3}{4}$	4.00	6.50	35-L
36-L	$1\frac{1}{4} \times 2\frac{1}{4}$	$\frac{1}{4} \times 1\frac{3}{8}$	9	4.65	7.75	36-L



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG SIDE TOOLS

Patented

RIGHT HAND STRAIGHT SHANK



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Holder Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
79-R	$\frac{5}{16}$ x $\frac{3}{4}$ x $4\frac{1}{2}$	$\frac{1}{8}$ x $\frac{1}{2}$	$\frac{5}{8}$	\$0.60	\$ 1.90	79-R
80-R	$\frac{3}{8}$ x $\frac{7}{8}$ x 5	$\frac{5}{8}$ x $\frac{5}{8}$	$\frac{3}{4}$	.90	2.25	80-R
81-R	$\frac{1}{2}$ x $1\frac{1}{8}$ x 6	$\frac{3}{16}$ x $\frac{3}{4}$	$1\frac{1}{4}$	1.40	2.90	81-R
82-R	$\frac{5}{8}$ x $1\frac{3}{8}$ x 7	$\frac{1}{4}$ x $\frac{7}{8}$	$1\frac{3}{4}$	2.30	4.00	82-R
83-R	$\frac{3}{4}$ x $1\frac{5}{8}$ x 8	$\frac{5}{16}$ x 1	$3\frac{1}{4}$	3.40	5.25	83-R
84-R	$\frac{7}{8}$ x $1\frac{3}{4}$ x 9	$\frac{3}{8}$ x $1\frac{1}{4}$	5	5.00	7.10	84-R
85-R	1 x 2 x 11	$\frac{7}{16}$ x $1\frac{3}{8}$	$7\frac{1}{2}$	6.00	8.50	85-R
86-R	$1\frac{1}{4}$ x $2\frac{1}{4}$ x 13	$\frac{1}{2}$ x $1\frac{1}{2}$	11	7.90	11.00	86-R
87-R	$1\frac{1}{2}$ x $2\frac{3}{8}$ x 15	$\frac{9}{16}$ x $1\frac{5}{8}$	16	10.00	15.75	87-R





ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG SIDE TOOLS

Patented

## LEFT HAND STRAIGHT SHANK

Our Straight Shank Side Tools are well adapted to use on the Planer and Shaper for many classes of work on which they will be found exceptionally convenient and efficient.



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Holder Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
79-L	$\frac{5}{16} \times \frac{3}{4} \times 4\frac{1}{2}$	$\frac{1}{8} \times \frac{1}{2}$	$\frac{5}{8}$	\$0.60	\$ 1.90	79-L
80-L	$\frac{3}{8} \times \frac{7}{8} \times 5$	$\frac{5}{32} \times \frac{5}{8}$	$\frac{3}{4}$	.90	2.25	80-L
81-L	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{3}{16} \times \frac{3}{4}$	$1\frac{1}{4}$	1.40	2.90	81-L
82-L	$\frac{5}{8} \times 1\frac{3}{8} \times 7$	$\frac{1}{4} \times \frac{7}{8}$	$1\frac{3}{4}$	2.30	4.00	82-L
83-L	$\frac{3}{4} \times 1\frac{5}{8} \times 8$	$\frac{5}{16} \times 1$	$3\frac{1}{4}$	3.40	5.25	83-L
84-L	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	$\frac{3}{8} \times 1\frac{1}{4}$	5	5.00	7.10	84-L
85-L	1 x 2 x 11	$\frac{7}{16} \times 1\frac{3}{8}$	$7\frac{1}{2}$	6.00	8.50	85-L
86-L	$1\frac{1}{4} \times 2\frac{1}{4} \times 13$	$\frac{1}{2} \times 1\frac{1}{2}$	11	7.90	11.00	86-L
87-L	$1\frac{1}{2} \times 2\frac{3}{8} \times 15$	$\frac{9}{16} \times 1\frac{5}{8}$	16	10.00	15.75	87-L



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG SIDE TOOLS

Patented

RIGHT HAND OFF-SET



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Shank Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
69-R	$\frac{5}{16} \times \frac{3}{4}$	$\frac{1}{8} \times \frac{1}{2}$	$\frac{5}{8}$	\$0.60	\$ 1.90	69-R
70-R	$\frac{3}{8} \times \frac{7}{8}$	$\frac{5}{32} \times \frac{5}{8}$	$\frac{3}{4}$	.90	2.25	70-R
71-R	$\frac{1}{2} \times 1\frac{1}{8}$	$\frac{3}{16} \times \frac{3}{4}$	$1\frac{1}{2}$	1.40	2.90	71-R
72-R	$\frac{5}{8} \times 1\frac{3}{8}$	$\frac{1}{4} \times \frac{7}{8}$	$2\frac{1}{4}$	2.30	4.00	72-R
73-R	$\frac{3}{4} \times 1\frac{5}{8}$	$\frac{5}{16} \times 1$	$3\frac{1}{2}$	3.40	5.25	73-R
74-R	$\frac{7}{8} \times 1\frac{3}{4}$	$\frac{3}{8} \times 1\frac{1}{4}$	6	5.00	7.10	74-R
75-R	1 x 2	$\frac{7}{16} \times 1\frac{3}{8}$	$8\frac{1}{2}$	6.00	8.50	75-R
76-R	$1\frac{1}{4} \times 2\frac{1}{4}$	$\frac{1}{2} \times 1\frac{1}{2}$	$12\frac{3}{4}$	7.90	11.00	76-R



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG SIDE TOOLS

Patented

## LEFT HAND OFF-SET

The design of the Armstrong Side Tools is typical of the entire Armstrong system of Tool Holders, embodying the prime needs of a practical lathe tool, viz., convenience, simplicity and strength.



Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Shank Inches	Size of Cutter Inches	Weight Each Pounds	Extra Cutters High Speed Each	Price Each Complete	No.
69-L	$\frac{5}{16} \times \frac{3}{4}$	$\frac{1}{8} \times \frac{1}{2}$	$\frac{5}{8}$	\$0.60	\$ 1.90	69-L
70-L	$\frac{3}{8} \times \frac{7}{8}$	$\frac{5}{32} \times \frac{5}{8}$	$\frac{3}{4}$	.90	2.25	70-L
71-L	$\frac{1}{2} \times 1\frac{1}{8}$	$\frac{3}{16} \times \frac{3}{4}$	$1\frac{1}{2}$	1.40	2.90	71-L
72-L	$\frac{5}{8} \times 1\frac{3}{8}$	$\frac{1}{4} \times \frac{7}{8}$	$2\frac{1}{4}$	2.30	4.00	72-L
73-L	$\frac{3}{4} \times 1\frac{5}{8}$	$\frac{5}{16} \times 1$	$3\frac{1}{2}$	3.40	5.25	73-L
74-L	$\frac{7}{8} \times 1\frac{3}{4}$	$\frac{3}{8} \times 1\frac{1}{4}$	6	5.00	7.10	74-L
75-L	1 x 2	$\frac{7}{16} \times 1\frac{3}{8}$	$8\frac{1}{2}$	6.00	8.50	75-L
76-L	$1\frac{1}{4} \times 2\frac{1}{4}$	$\frac{1}{2} \times 1\frac{1}{2}$	$12\frac{3}{4}$	7.90	11.00	76-L



ARMSTRONG BROS.



TOOL CO., CHICAGO



# ARMSTRONG "BIG TEN" LATHE TOOL SET



LEFT HAND  
TURNING TOOL



STRAIGHT SHANK TURNING TOOL



RIGHT HAND  
TURNING TOOL



BORING TOOL



STRAIGHT SHANK CUT-OFF TOOL



THREADING TOOL



LEFT HAND OFF-SET CUT-OFF TOOL



RIGHT HAND OFF-SET CUT-OFF TOOL



LEFT HAND OFF-SET SIDE TOOL



RIGHT HAND OFF-SET SIDE TOOL



## ARMSTRONG LATHE TOOL SETS

## "BIG TEN" TOOL HOLDER SET

This set includes the ten tools shown on the opposite page and is so complete as to cover the entire range of lathe work and to render entirely unnecessary the forging of tools with the attendant waste of time and material. Each Holder is equipped with Wrench and one High Speed Cutter.

Set No.	Size of Tool Shanks Inches	For Lathes (See Note)	Weight of Set Pounds	Price Set of Ten	Set No.
00	5/16 x 3/4	7 to 10 In. Swing	6 1/2	\$20.90	00
0	3/8 x 7/8	10 to 12 In. "	8 1/2	22 20	0
1	1/2 x 1 1/8	14 to 16 In. "	17	26.65	1
2	5/8 x 1 3/8	16 to 18 In. "	27	34.45	2
3	3/4 x 1 5/8	18 to 20 In. "	43	46.00	3
4	7/8 x 1 3/4	24 to 36 In. "	62	60.25	4
5	1 x 2	36 to 48 In. "	91	79.25	5

## "HANDY FIVE" TOOL HOLDER SET

This set includes the Five Lathe Tools which are constantly used on ordinary work—

Straight Shank Turning Tool.

Boring Tool.

Threading Tool.

Right Hand Off-set Cutting-off Tool.

Right Hand Off-set Side Tool.

Each Holder is equipped with Wrench and one High Speed Cutter.

Set No.	Size of Tool Shanks Inches	For Lathes (See Note)	Weight of Set Pounds	Price Set of Five	Set No.
00-F	5/16 x 3/4	7 to 10 In. Swing	4	\$11.60	00-F
0-F	3/8 x 7/8	10 to 12 In. "	5	12.15	0-F
1-F	1/2 x 1 1/8	14 to 16 In. "	9 1/2	14.65	1-F
2-F	5/8 x 1 3/8	16 to 18 In. "	16	19.00	2-F
3-F	3/4 x 1 5/8	18 to 20 In. "	25	25.60	3-F
4-F	7/8 x 1 3/4	24 to 36 In. "	37	33.95	4-F
5-F	1 x 2	36 to 48 In. "	53	44.75	5-F

NOTE—As there is a wide variation in the proportions of Lathes of different manufacture, it is only possible to give approximate size or swing of Lathes adapted to the use of tools of different sizes. Tool posts should be carefully measured before ordering tools.



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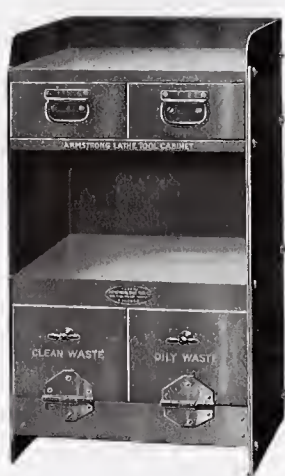


## ARMSTRONG "ALL STEEL" LATHE TOOL CABINETS

Patented

These handsome cabinets are especially adapted for Armstrong Lathe Tool Sets; they not only add to the systematic and orderly appearance of the shop, but they will save much time that is ordinarily wasted hunting for mislaid tools, as they keep together each man's tools, chuck, waste, and other equipment within easy reach at all times.

They also conform to the modern shop practice of replacing wood with non-combustible materials wherever possible, and furnish separate, automatic closing receptacles for clean and oily waste, as required by the insurance rules.



No.	Dimensions Inches	Suitable for Lathe Tool Sets	Weight Pounds	Price Each	No.
0-1	18x16x34	Nos. 0 and 1	105	\$30.00	0-1
2-3	21x19x34	Nos. 2 and 3	120	33.00	2-3
4-5	24x22x34	Nos. 4 and 5	143	36.00	4-5



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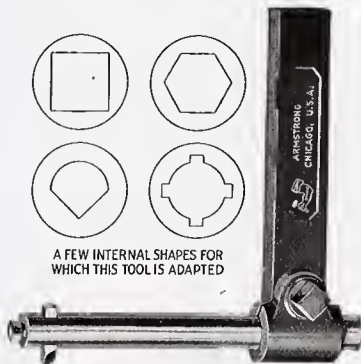
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## ARMSTRONG EXTENSION SHAPER TOOL

Patented

This is an extremely rigid and convenient tool, well adapted for die work, cutting internal key ways, or for any kind of work on the Shaper in which extra clearance is needed.



Each Tool is boxed separately and price includes Holder and one Bar, one High Speed Cutter and Wrench.

No.	Size Shank Inches	Size Bar Inches	Size Cutter Inch Sq.	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
47	$\frac{1}{2} \times 1\frac{1}{8}$	$\frac{3}{4} \times 10$	$\frac{5}{16}$	$3\frac{1}{4}$	\$0.24	\$3.00	47
48	$\frac{5}{8} \times 1\frac{1}{8}$	$1\frac{1}{4} \times 12$	$\frac{3}{8}$	6	.40	3.75	48
49	$\frac{3}{4} \times 1\frac{3}{8}$	$1\frac{1}{2} \times 14$	$\frac{7}{16}$	$9\frac{3}{4}$	.55	5.25	49

## Extra Bars and Bushings

Price includes Bar, one Bushing, one High Speed Cutter and Wrench

Dimensions of Bar		Size of Cutter Inch Square	With Bushing to Fit Shank Number	Extra Cutter Bits High Speed Each	Price Each Complete
Diameter Inches	Length Inches				
$\frac{1}{2}$	$7\frac{1}{2}$	$\frac{3}{16}$	47, 48 or 49	\$0.10	\$1.90
$\frac{5}{8}$	$8\frac{1}{2}$	$\frac{1}{4}$	47, 48 or 49	.12	2.00
$\frac{3}{4}$	10	$\frac{5}{16}$	48 or 49	.24	2.20
$1\frac{1}{8}$	12	$\frac{3}{8}$	49	.40	2.50
$1\frac{1}{2}$	14	$\frac{7}{16}$	Without Bushing	.55	2.50

NOTE—In ordering be careful to give size of shank (or number of tool) in which bar is to be used. When this information is not given no bushing will be included.



## ARMSTRONG PLANER AND SHAPER TOOLS

Patented

Convenient, Efficient and Economical

One of these tools is effectively worth a dozen forged tools.

Fig. 1 shows the Armstrong Planer Tool cutting a keyway with the cutter reversed and the tool turned around, thus throwing the cutting point behind center of tool and working as a "goose neck" tool.

Fig. 2 shows the Armstrong Planer Tool at work in close corners, giving a good general idea of clearance obtained. It shows also a few of the angles at which the cutter can be set. A job similar to one shown could be finished with the Armstrong Planer Tool without shifting position of the work on bed.

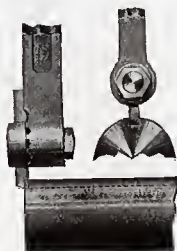


Fig. 1



Fig. 2

Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	Size of Holder Inches	Size Cutter Inches	Weight Each, lbs.	Extra Cutter Bits High Speed Each	Price Each Complete	No.
40*	1½ x 1 x 6	¼ x ⅜	1¾	\$0.35	\$ 3.10	40*
401*	⅝ x 1½ x 8½	⅝ x ⅞	3¼	.55	4.00	401*
41*	¾ x 1½ x 10	⅝ x 1½	5	.80	5.25	41*
42	1½ x 1¾ x 13	1½ x ¾	11	1.95	8.25	42
43	1¾ x 2 x 16	⅝ x ¾	19½	3.35	12.75	43
44	17⁄8 x 2¼ x 19	¾ x 1	35	5.00	19.50	44
45	2½ x 2¾ x 22	7⁄8 x 1½	51	8.20	30.00	45

\*Shaper sizes.



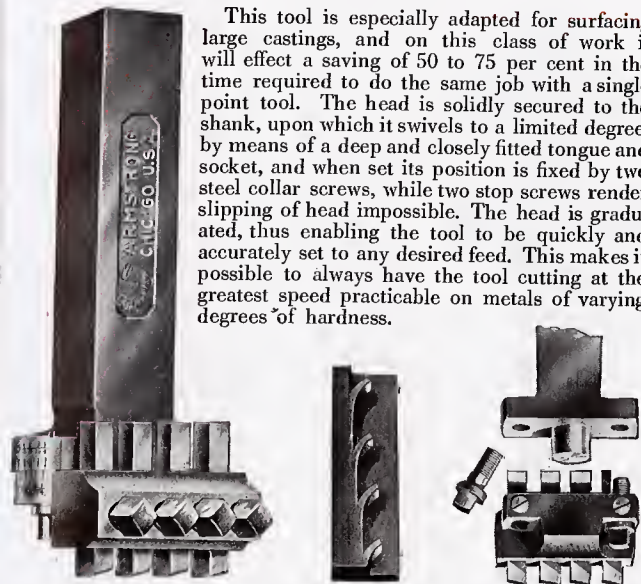


# ARMSTRONG GANG PLANER TOOL

Patented

For Planing Large Surfaces

This tool is especially adapted for surfacing large castings, and on this class of work it will effect a saving of 50 to 75 per cent in the time required to do the same job with a single point tool. The head is solidly secured to the shank, upon which it swivels to a limited degree, by means of a deep and closely fitted tongue and socket, and when set its position is fixed by two steel collar screws, while two stop screws render slipping of head impossible. The head is graduated, thus enabling the tool to be quickly and accurately set to any desired feed. This makes it possible to always have the tool cutting at the greatest speed practicable on metals of varying degrees of hardness.



As each chip is comparatively light, a planer will, with this tool, carry with ease a feed and depth of cut much greater than is possible when using an ordinary tool, and there is much less tendency to "break out" at the end of cut. Each Tool is boxed separately and price includes one set (four) High Speed Cutters, Wrench and Grinding Gauge.

No.	Size Shank Inches	Length Over All Inches	Size Cutter Inches	Feed Adjust- ment Inches	Weight Each Pounds	Extra Cutters Each	Price Each Com- plete	No.
61	1¼ x 1¾ x 7½	10	¾ x ½	0 to ¼	10		\$13.00	61
62	1⅝ x 2¼ x 9	12	½ x 1¼	0 to ⅜	20	\$0.85	22.00	62
63	2 x 2½ x 11	14	⅝ x ⅞	0 to ½	35	1.70	38.50	63
						2.80		



## ARMSTRONG SLOTTER TOOL

WITH HOLLOW BAR

Patented



This tool is very stiff and easily adjustable to different lengths of stroke, and can be rotated conveniently for working into corners or in different positions. It has a spring relief block which saves the cutter point from wear and tear of the return stroke, and is so constructed as to be protected from chips and dirt. The cutter is fixed at an angle which allows it to take a clean curling chip without excessive top grinding, and as the point can be projected beyond the end of the bar it is possible to cut right down to the table.

NOTE—As there is considerable difference in the size of T slots of machines of different manufacture, the clamps and bolt heads of this tool are made of ample size to allow for fitting.

FITTING—An extra charge of \$3.00 net will be made for fitting to dimensions.






Each Tool is boxed separately and price includes Wrench and one High Speed Cutter.

No.	For Slotting Machine, Inch Stroke	Diam. of Bar Inches	Length Over All Inches	Size of Cutter, Inches	Weight Each Pounds	Extra Cutter Bits High Speed Each	Price Each Complete	No.
91	6 and 8	1½	16	7/16 x 9/16	21	\$1.20	\$25.00	91
92	10 and 12	2	22	½ x 11/16	55	1.60	45.00	92
93	14 and 16	2¼	27	9/16 x ¾	78	2.20	65.00	93
94	18 and 20	2½	32	5/8 x 7/8	108	3.35	92.00	94
95	22 and 24	2¾	37	¾ x 1	152	5.00	120.00	95



## ARMSTRONG SPECIAL SELF-HARDENING TOOL HOLDER STEEL IN 3 FOOT BARS.

Ready to use—No treatment required

SQUARES		Size Inches	Price Per 3 Ft. Bar	Size Inches	Price Per 3 Ft. Bar
	For use in Armstrong Turning and Boring Tools.	$\frac{3}{16}$	\$1.20	$\frac{5}{8}$	\$11.10
		$\frac{1}{4}$	2.00	$\frac{3}{4}$	15.80
		$\frac{5}{16}$	3.00	$\frac{7}{8}$	21.30
		$\frac{3}{8}$	4.25	1	28.20
		$\frac{7}{16}$	5.60	$1\frac{1}{8}$	34.35
		$\frac{1}{2}$	7.10		
FLATS					
	For use in Armstrong Planer and Slotter Tools.	$\frac{1}{4} \times \frac{3}{8}$	\$3.10	$\frac{1}{2} \times \frac{3}{4}$	\$11.00
		$\frac{5}{16} \times \frac{7}{16}$	4.25	$\frac{9}{16} \times \frac{3}{4}$	12.00
		$\frac{3}{8} \times \frac{1}{2}$	5.85	$\frac{5}{8} \times \frac{7}{8}$	15.60
		$\frac{7}{16} \times \frac{9}{16}$	8.15	$\frac{3}{4} \times 1$	20.65
		$\frac{1}{2} \times 1\frac{1}{16}$	10.35	$\frac{7}{8} \times 1\frac{1}{8}$	27.30
ROUNDS					
	For use in Armstrong Turning Tools.	$\frac{1}{4}$	\$1.65	$\frac{7}{16}$	\$4.45
		$\frac{5}{16}$	2.40	$\frac{1}{2}$	5.65
		$\frac{3}{8}$	3.35	$\frac{5}{8}$	8.80
BEVEL		Size of Steel—Inches		Price Per 3 Ft. Bar	
	For use in Armstrong Cutting-Off Tools.	$\frac{5}{32} \times \frac{1}{2}$		\$2.40	
		$\frac{3}{32} \times \frac{5}{8}$		2.40	
		$\frac{1}{8} \times \frac{3}{4}$		3.55	
		$\frac{1}{8} \times \frac{7}{8}$		3.75	
		$\frac{3}{16} \times 1$		6.00	
		$\frac{3}{16} \times 1\frac{1}{8}$		6.60	
		$\frac{1}{4} \times 1\frac{1}{4}$		9.25	
		$\frac{1}{4} \times 1\frac{3}{8}$		9.60	
SPECIAL SHAPE		Size of Steel on lines AA and BB Inches		Price Per 3 Ft. Bar	
	For use in Armstrong Side Tools	$\frac{1}{8} \times \frac{1}{2}$		\$2.50	
		$\frac{5}{32} \times \frac{5}{8}$		3.30	
		$\frac{3}{16} \times \frac{3}{4}$		4.15	
		$\frac{1}{4} \times \frac{7}{8}$		5.85	
		$\frac{5}{16} \times 1$		7.60	
		$\frac{3}{8} \times 1\frac{1}{4}$		10.60	
		$\frac{7}{16} \times 1\frac{3}{8}$		12.75	
		$\frac{1}{2} \times 1\frac{1}{2}$		18.65	

NOTE—Steel for Side Tools and Cutting-Off Tools is rolled to approximate size, but requires grinding on edges to bring to exact size fitting Armstrong Cutting-Off and Side Tool Holders.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG HIGH SPEED STEEL BITS CUTTER LENGTHS—HARDENED

Require grinding only to make them ready for use in  
Armstrong Tool Holders



### SQUARES FOR TURNING AND BORING TOOLS

FOR TURNING TOOLS			FOR BORING TOOLS		
Size Inches	Length Inches	Price Each	Size Inches	Length Inches	Price Each
$\frac{3}{16}$	$1\frac{3}{4}$	\$0.15	$\frac{3}{16}$	1	\$0.10
$\frac{1}{4}$	$2\frac{1}{8}$	.20	$\frac{3}{16}$	$1\frac{1}{4}$	.10
$\frac{5}{16}$	$2\frac{3}{4}$	.35	$\frac{1}{4}$	$1\frac{1}{4}$	.12
$\frac{3}{8}$	$3\frac{1}{4}$	.55	$\frac{1}{4}$	$1\frac{3}{4}$	.18
$\frac{7}{16}$	$3\frac{3}{4}$	.90	$\frac{5}{16}$	$1\frac{1}{2}$	.24
$1\frac{1}{2}$	$4\frac{1}{4}$	1.30	$\frac{5}{16}$	$2\frac{1}{4}$	.30
$\frac{5}{8}$	5	2.35	$\frac{3}{8}$	$1\frac{7}{8}$	.40
$\frac{3}{4}$	$5\frac{3}{4}$	3.85	$\frac{3}{8}$	$2\frac{5}{8}$	.50
$\frac{7}{8}$	$6\frac{1}{2}$	5.85	$\frac{7}{16}$	$2\frac{1}{8}$	.55
1	$7\frac{1}{4}$	8.35	$\frac{7}{16}$	$2\frac{7}{8}$	.75
$1\frac{1}{8}$	8	11.35	$1\frac{1}{2}$	$2\frac{3}{8}$	.80
			$1\frac{1}{2}$	$3\frac{1}{4}$	1.00
			$\frac{5}{8}$	$2\frac{3}{4}$	1.40
			$\frac{5}{8}$	4	1.80
			$\frac{3}{4}$	$3\frac{1}{8}$	2.75
			$\frac{3}{4}$	5	3.40



### FLATS FOR PLANER AND SLOTTER TOOLS


FOR PLANER TOOLS			FOR SLOTTER AND GANG PLANER TOOLS		
Size Inches	Length Inches	Price Each	Size Inches	Length Inches	Price Each
$\frac{1}{4} \times \frac{3}{8}$	$2\frac{1}{2}$	\$0.35	$\frac{7}{16} \times \frac{9}{16}$	$3\frac{1}{2}$	\$1.20
$\frac{5}{16} \times \frac{7}{16}$	3	.55	$\frac{1}{2} \times \frac{11}{16}$	$3\frac{3}{4}$	1.60
$\frac{3}{8} \times \frac{1}{2}$	$3\frac{1}{2}$	.80	$\frac{9}{16} \times \frac{3}{4}$	$4\frac{1}{4}$	2.20
$\frac{1}{2} \times \frac{3}{4}$	$4\frac{1}{4}$	1.95	$\frac{5}{8} \times \frac{7}{8}$	5	3.35
$\frac{5}{8} \times \frac{7}{8}$	5	3.35	$\frac{3}{4} \times 1$	$5\frac{3}{4}$	5.00
$\frac{3}{4} \times 1$	6	5.00	$\frac{3}{8} \times \frac{1}{2}$	3	.70
$\frac{7}{8} \times 1\frac{1}{8}$	7	8.20	$\frac{1}{2} \times \frac{11}{16}$	$3\frac{1}{2}$	1.50
			$\frac{5}{8} \times \frac{7}{8}$	4	2.55




## ARMSTRONG HIGH SPEED STEEL BITS CUTTER LENGTHS—HARDENED

Require grinding only to make them ready for use in  
Armstrong Tool Holders


### ROUND FOR TURNING TOOLS

	Size Inches	Length Inches	Price Each
	$\frac{1}{4}$	$2\frac{3}{8}$	\$0.15
	$\frac{5}{16}$	3	.30
	$\frac{3}{8}$	$3\frac{1}{2}$	.50
	$\frac{7}{16}$	$3\frac{3}{8}$	.75
	$\frac{1}{2}$	$4\frac{1}{2}$	1.00
	$\frac{5}{8}$	$5\frac{1}{2}$	1.95

### BEVEL FOR CUTTING-OFF TOOLS

	Size Inches	Length Inches	Price Each
	$\frac{3}{32} \times \frac{1}{2}$	$4\frac{1}{2}$	\$0.40
	$\frac{3}{32} \times \frac{5}{8}$	5	.40
	$\frac{1}{8} \times \frac{3}{4}$	6	.65
	$\frac{1}{8} \times \frac{7}{8}$	7	.95
	$\frac{9}{16} \times 1$	8	1.75
	$\frac{3}{16} \times 1\frac{1}{8}$	9	2.20
	$\frac{1}{4} \times 1\frac{1}{4}$	10	3.40
	$\frac{1}{4} \times 1\frac{3}{8}$	11	4.00

### SPECIAL SHAPE FOR SIDE TOOLS

	Size Inches on Lines AA and BB	Length Inches	Price Each
	$\frac{1}{8} \times \frac{1}{2}$	$4\frac{1}{2}$	\$0.45
	$\frac{5}{32} \times \frac{5}{8}$	5	.50
	$\frac{3}{16} \times \frac{3}{4}$	6	.85
	$\frac{1}{4} \times \frac{7}{8}$	7	1.45
	$\frac{5}{16} \times 1$	8	2.20
	$\frac{3}{8} \times 1\frac{1}{4}$	9	3.40
	$\frac{7}{16} \times 1\frac{3}{8}$	10	4.60
	$\frac{1}{2} \times 1\frac{1}{2}$	11	7.35
	$\frac{9}{16} \times 1\frac{3}{8}$	15	9.50

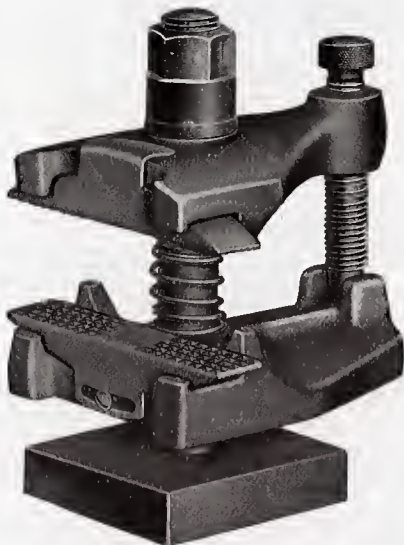
NOTE—Bevel and Special Shapes are rolled to approximate size, but require grinding on edges to bring to exact size fitting Armstrong Cutting-Off and Side Tool Holders; for prices of finished Cutters fitting Cutting-Off and Side Tool Holders see pages 33-39.



## ARMSTRONG IMPROVED LATHE TOOL POST

Patented

This Tool Post combines the strength and holding power of the strap and stud tool clamp with the convenience of the "open side" and ordinary Set Screw Tool Post.



### POINTS OF SUPERIORITY

It is stronger and stiffer than the ordinary Tool Post; will not slip or chatter and consequently will do more accurate work.

As there is no side projection, it is peculiarly adapted to working close up to the chuck.

It has a great range of adjustment without loss of holding power as the rocker jaws adjust themselves on parallel lines.

The Open Side design permits rapid and convenient change and adjustment of tools.

It will not cut or tear the tool shank, and is therefore peculiarly adapted to use in connection with Tool Holders. The Body Parts and Jaws are Drop Forged of Steel, hardened, and other parts are Bar Steel.

No.	For Tools Size in Inches	For Lathes	Weight Each Pounds	Price Each	No.
1-T	$\frac{1}{2} \times \frac{11}{8}$ inch and less	12 to 14 in. swing	5	\$ 5.50	1-T
2-T	$\frac{5}{8} \times \frac{13}{8}$ and $\frac{3}{4} \times \frac{15}{8}$	16 to 18 "	$8\frac{1}{2}$	7.00	2-T
3-T	$\frac{3}{4} \times \frac{15}{8}$ and $\frac{7}{8} \times \frac{13}{4}$	20 to 22 "	$11\frac{1}{2}$	9.00	3-T
4-T	$\frac{7}{8} \times \frac{13}{4}$ and 1x2	24 to 32 "	18	12.00	4-T

NOTE—Bolt Head is made large enough to allow for fitting. This is made necessary by the variation in size of T Slots in lathes of different manufacture.

FITTING—An extra charge of \$1.00 net will be made for fitting bolt head to dimensions.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG QUICK ACTION DRILL VISE

Patented

An extremely handy vise for tool makers and  
general machine shop use

### POINTS OF ADVANTAGE

One turn of handle sets or releases the vise.

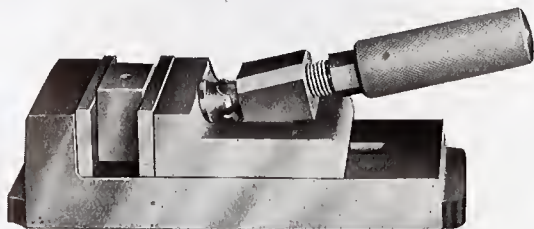
It can be instantly adjusted to any size within its capacity.

The sides are ground true and at right angles with the bottom.

It will hold work true and solid, as the sliding jaw draws down.

The handle provides a safe and convenient means of holding  
light work with ample leverage against the tendency to twist under  
strain of cut, and bottom of vise has projecting lugs at either end to  
facilitate clamping it to the machine when desirable.

Each vise is boxed separately.



No.	Capacity			Weight Each Pounds	Price Each	No.
	Width of Jaw Inches	Depth of Jaw Inches	Opens Inches			
1-V	2	$1\frac{5}{16}$	$1\frac{3}{4}$	$4\frac{1}{2}$	\$ 9.00	1-V
2-V	$2\frac{3}{4}$	$1\frac{9}{16}$	$2\frac{1}{2}$	$8\frac{1}{2}$	12.00	2-V
3-V	$3\frac{1}{2}$	$1\frac{7}{16}$	3	16	16.00	3-V



## ARMSTRONG PLANER JACK



These Jacks are designed to displace the haphazard devices and methods quite generally in use for leveling work on machine tools and a glance will show any mechanic their convenience and utility. A set of them on a machine will greatly reduce the proportion of time required for preliminary arrangements as compared with the actual machine time on the job, and will, moreover, by their perfect adjustability and solidity, insure good, true surfaced work.

Each Jack is boxed separately.

No.	Height Contracted Inches	Height Extended Inches	Weight Each Pounds	Price Each	No.
1	2¾	3¾	1½	\$1.25	1
2	3¾	5¼	3	2.00	2
3	5¼	7½	6	3.00	3
4	7½	12	12	5.75	4





## ARMSTRONG SAFETY DRILL DRIFT

Patented.

Automatic—Convenient—Effective

Serious injury to workmen is liable to result from the use of the common Drift and Hammer through heavy Chucks, Drills, etc., falling on the operators feet and the tools themselves are often damaged by rough contact with the floor or machine table; having both hands occupied with Drift and Hammer the workman is helpless and must take chances.



### SAFETY FIRST

This drill won't fall on the operator's foot

The Armstrong Safety Drift combines Hammer and Drift thus leaving one hand free to support the tool to be removed: see illustration.

The heavy handle or driver is slidably mounted upon the blade, which is automatically kept extended, when not in operation, by a low tension coil spring.

In operating, the point of the blade is inserted in the slot of drill socket and the handle driven forcibly up the blade, until it strikes the butt end of drift—it will strike a blow sufficiently heavy to remove the most stubborn drill. One of these drifts attached to each drill press will soon save enough time to repay its cost many times.



No.	Capacity Morse Taper	Recommended For	Weight Each Pounds	Extra Blades Each	Price Each Complete	No.
1-A	No. 1, 2 or 3	No. 1 or 2	1½	\$0.40	\$2.00	1-A
2-A	" 2, 3 or 4	" 2 or 3	2½	.50	2.50	2-A
3-A	" 3, 4 or 5	" 3 or 4	3¾	.65	3.50	3-A
4-A	" 4, 5 or 6	" 4 or 5	6	1.00	4.50	4-A



## ARMSTRONG GRINDING HOLDERS

Grinding Holders are convenient and inexpensive.

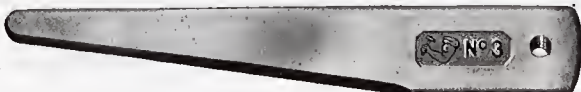
Tool Holders are frequently ruined by workmen holding cutters in them while grinding or sharpening and this wasteful practice can be corrected by the use of these Grinding Holders.



No.	Holds Cutters	Weight Each Pounds	Price Each	No.
1-G	$\frac{3}{16}$ inch and $\frac{1}{4}$ inch . . . .	1	\$0.60	1-G
2-G	$\frac{5}{16}$ inch and $\frac{3}{8}$ inch . . . .	$1\frac{1}{2}$	.80	2-G
3-G	$\frac{7}{16}$ inch and $\frac{1}{2}$ inch . . . .	$2\frac{1}{4}$	1.00	3-G
4-G	$\frac{5}{8}$ inch and $\frac{3}{4}$ inch . . . .	$3\frac{1}{2}$	1.50	4-G
5-G	$\frac{7}{8}$ inch, 1 inch and $1\frac{1}{8}$ inch . . . .	$5\frac{1}{2}$	2.25	5-G

## PLAIN DRILL DRIFTS

These Drifts are Drop Forged from Steel, Finished and Hardened

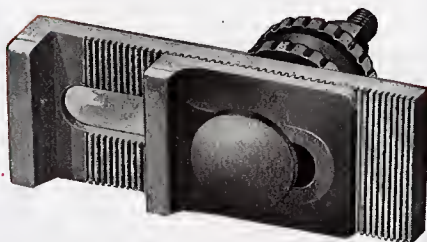


No.	Length Inches	Fitting	Weight Each Pounds	Price Each	No.
1	5	No. 1 Sockets and Sleeves	$\frac{1}{8}$	\$0.30	1
2	6	" 2 " " "	$\frac{1}{4}$	.35	2
3	7	" 3 " " "	$\frac{1}{2}$	.40	3
4	$8\frac{1}{2}$	" 4, 5 & 6 " " "	1	.50	4



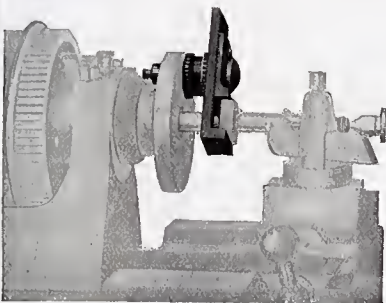
## ARMSTRONG BOLT DRIVER

Drop Forged Steel



This is an extremely handy lathe attachment for turning square, flat or hexagon stock, especially when a number of pieces of same size are to be turned, as no adjustment, tightening and loosening is necessary when changing pieces. Each Driver is boxed separately.

No.	Capacity Inches	Weight Each Pounds	Price Each	No.
2-D	2	2 $\frac{1}{4}$	\$2.75	2-D
3-D	3	5 $\frac{1}{4}$	4.00	3-D
4-D	4	10 $\frac{1}{4}$	6.00	4-D



This illustration shows the Bolt Driver in action and indicates manner of attaching it to lathe. The work is centered and rests between jaws of Driver without being clamped, so that work can be changed quickly.



## BENT TAIL LATHE DOGS

With Either Square Head Screw or Safety Headless Screw

Drop Forged Steel



With Square Head Screw

The design as well as the quality of material and workmanship in these lathe dogs is unexcelled. They are forged from a special grade of open hearth steel which is tough, and at the same time possesses the stiffness which is essential in a good lathe dog. The hubs are large enough to permit of retapping.



With Headless Screw

The screws are made from alloy steel with U. S. Standard thread, and are hardened on the point, the improved shape of which also renders them less liable to "flange" or upset.

Number		Capacity Inches	Weight Each Pounds	Wrench for Headless Screw Each Extra	Extra Screws Each		Price Each Com- plete*
With Square Head Screw	With Headless Screw				Square Head	Headless	
1	1-H	$\frac{3}{8}$	$\frac{1}{4}$	\$0.06	\$0.10	\$0.10	\$0.50
2	2-H	$\frac{1}{2}$	$\frac{3}{8}$	.07	.11	.12	.55
3	3-H	$\frac{3}{4}$	$\frac{1}{2}$	.08	.12	.15	.60
4	4-H	1	$\frac{3}{4}$	.09	.14	.18	.70
5	5-H	$1\frac{1}{4}$	$1\frac{1}{2}$	.10	.15	.21	.85
6	6-H	$1\frac{1}{2}$	2	.12	.19	.25	1.00
7	7-H	$1\frac{3}{4}$	$2\frac{3}{4}$	.13	.22	.30	1.20
8	8-H	2	$3\frac{1}{2}$	.15	.26	.36	1.40
9	9-H	$2\frac{1}{2}$	$5\frac{1}{4}$	.19	.33	.43	1.80
10	10-H	3	$6\frac{3}{4}$	.24	.36	.43	2.30
11	11-H	$3\frac{1}{2}$	9	.30	.50	.58	3.00
12	12-H	4	12	.37	.55	.58	4.50
13	13-H	5	18	.45	.75	.75	8.00
14	14-H	6	24	.55	.80	.75	12.00

\*Price does not include Wrench. When ordering Dogs with Headless Screws specify whether Wrenches are wanted or not and if wanted how many. When not otherwise specified one Wrench for each size Dog ordered will be shipped and charged for. Dogs with Square Head Screws will be shipped when not otherwise specified.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## STRAIGHT TAIL LATHE DOGS

With Either Square Head Screw or Safety Headless Screw

Drop Forged Steel



With Square Head Screw



With Safety Headless Screw

Number		Capacity Inches	Weight Each Pounds	Wrench for Headless Screw Each Extra	Extra Screws Each		Price Each Complete*
With Square Head Screw	With Headless Screw				Square Head	Headless	
21	21-H	$\frac{3}{8}$	$\frac{1}{4}$	\$0.06	\$0.10	\$0.10	\$0.50
22	22-H	$\frac{1}{2}$	$\frac{1}{4}$	.07	.11	.12	.55
23	23-H	$\frac{3}{4}$	$\frac{1}{2}$	.08	.12	.15	.60
24	24-H	1	$\frac{3}{4}$	.09	.14	.18	.70
25	25-H	$1\frac{1}{4}$	$1\frac{1}{4}$	.10	.15	.21	.85
26	26-H	$1\frac{1}{2}$	2	.12	.19	.25	1.00
27	27-H	$1\frac{3}{4}$	$2\frac{1}{2}$	.13	.22	.30	1.20
28	28-H	2	$3\frac{1}{4}$	.15	.26	.36	1.40
29	29-H	$2\frac{1}{2}$	$4\frac{3}{4}$	.19	.33	.43	1.80
30	30-H	3	$6\frac{3}{4}$	.24	.36	.43	2.30
31	31-H	$3\frac{1}{2}$	8	.30	.50	.58	3.00
32	32-H	4	11	.37	.55	.58	4.50
33	33-H	5	17	.45	.75	.75	8.00
34	34-H	6	22	.55	.80	.75	12.00

\*Price does not include Wrench. When ordering Dogs with Headless Screws specify whether Wrenches are wanted or not and if wanted how many. When not otherwise specified one Wrench for each size Dog ordered will be shipped and charged for. Dogs with Square Head Screws will be shipped when not otherwise specified.



## HEAVY DUTY LATHE DOGS

With Either Square Head Screws or Headless Screws  
Drop Forged Steel



With Square Head Screws

BENT  
TAIL,  
DOUBLE  
SCREW



With Safety Headless Screws

These Bent Tail, Heavy Duty Lathe Dogs are drop forged from steel, selected for its high degree of stiffness, combined with great tensile strength, which qualities are further improved by careful treatment.

The Screws are of the special quality used in all Armstrong Dogs, and are made from chrome nickel alloy steel, with U. S. Standard Thread; points are hardened,

Number		Capacity Inches	Weight Each Pounds	Wrench for Headless Screw Each Extra	Extra Screws Each		Price Each Com- plete*
With Square Head Screws	With Headless Screws				Square Head	Headless	
112	112-H	4	15	\$0.37	\$0.55	\$0.58	\$ 8.00
113	113-H	5	21	.45	.75	.75	12.00
114	114-H	6	29	.55	.80	.75	17.00

Dogs with Square Head Screws will be shipped when not otherwise specified.

\*Price does not include Wrench. When ordering Dogs with Headless Screws specify whether Wrenches are wanted or not and, if wanted, how many. When not otherwise specified one Wrench for each size Dog ordered will be shipped and charged for.



## HEAVY DUTY LATHE DOGS

With Either Square Head Screws or Safety Headless Screws  
Drop Forged Steel



STRAIGHT  
TAIL,  
DOUBLE  
SCREW



With Square Head Screws

With Headless Screws

Our Heavy Duty Dogs embody the proportions and quality of material needed to meet the demands of modern high powered lathes and High Speed Tool Steel and have been expressly designed to meet the extreme requirements of High Speeds and Heavy Feeds.

Number		Capacity Inches	Weight Each Pounds	Wrench for Headless Screw Each Extra	Extra Screws Each		Price Each Com- plete*
With Square Head Screws	With Headless Screws				Square Head	Headless	
128	128-H	2	5	\$0.15	\$0.26	\$0.36	\$ 2.75
129	129-H	2½	6¾	.19	.33	.43	3.50
130	130-H	3	8¾	.24	.36	.43	4.50
131	131-H	3½	12½	.30	.50	.58	6.00
132	132-H	4	15	.37	.55	.58	8.00
133	133-H	5	21	.45	.75	.75	12.00
134	134-H	6	29	.55	.80	.75	17.00
135	135-H	7	37	.65	1.15	.90	23.00
136	136-H	8	50	.75	1.30	.90	28.00

\*Price does not include Wrench. When ordering Dogs with Headless Screws specify whether Wrenches are wanted or not and, if wanted, how many. When not otherwise specified one Wrench for each size Dog ordered will be shipped and charged for. Dogs with Square Head Screws will be shipped when not otherwise specified.





ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG SAFETY LATHE DOGS

Patented July 8, 1914

Bent or  
Straight  
TailDROP  
FORGED  
STEEL

Bent Tail Safety Dog

Straight Tail Safety Dog

This lathe dog combines the convenience and efficiency of the common lathe dog with a perfect shield for the set screw head.

No special wrench is needed and the extra leverage provided by the safety cap makes the adjustment of the set screw by hand easy and fast. The interior of safety cap is shaped to conform to the head of set screw so that when the cap is turned the set screw turns with it, the head of screw slipping up or down inside the safety cap.

Number		Capacity Inchea	Weight Each Pounds	Price Each
Bent Tail	Straight Tail			
1-A	21-A	$\frac{3}{8}$	$\frac{3}{8}$	\$ 0.90
2-A	22-A	$\frac{1}{2}$	$\frac{1}{2}$	.95
3-A	23-A	$\frac{3}{4}$	$\frac{5}{8}$	1.00
4-A	24-A	1	1	1.15
5-A	25-A	$1\frac{1}{4}$	$1\frac{3}{4}$	1.40
6-A	26-A	$1\frac{1}{2}$	$2\frac{1}{4}$	1.70
7-A	27-A	$1\frac{3}{4}$	$2\frac{3}{4}$	2.00
8-A	28-A	2	$3\frac{3}{4}$	2.40
9-A	29-A	$2\frac{1}{2}$	$5\frac{1}{2}$	3.00
10-A	30-A	3	7	3.80
11-A	31-A	$3\frac{1}{2}$	$9\frac{1}{2}$	5.00
12-A	32-A	4	12	7.00
13-A	33-A	5	18	10.50
14-A	34-A	6	25	15.00

Bent Tail Doga will he shipped when not otherwise specified.





# ARMSTRONG SAFETY CLAMP LATHE DOGS

Patented

Practical, Safe and Well Balanced

This dog is so constructed as to combine a wide range of adjustment with the convenient features of the clamp dog and the simplicity and strength of the ordinary lathe dog. It will accommodate itself readily to work of any shape and will hold it securely and squarely, being especially adapted for use on finished work which would be liable to be damaged by the set screw of a common lathe dog. The sliding jaw is operated by a loose fitting U bolt, the ends of which are protected by SAFETY Sleeve Nuts and can be adjusted to size very quickly, only a wrench being necessary to tighten. One advantage of this dog is that it can be applied without removing work from centers. Each dog is boxed separately.

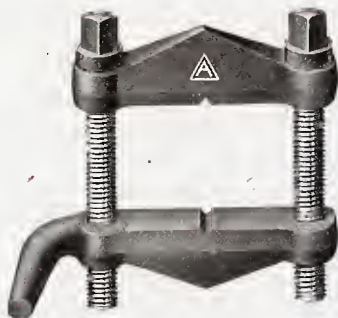


No.	Capacity Inches	Weight Each Pounds	Price Each	No.
1-U	$\frac{1}{8}$ to $\frac{5}{8}$	$\frac{5}{8}$	\$1.20	1-U
2-U	$\frac{3}{8}$ to 1	$1\frac{3}{4}$	1.50	2-U
3-U	$\frac{5}{8}$ to $1\frac{1}{2}$	3	2.00	3-U
4-U	$\frac{7}{8}$ to 2	$4\frac{1}{2}$	2.75	4-U
5-U	$1\frac{1}{4}$ to 3	$9\frac{1}{2}$	4.00	5-U
6-U	$1\frac{3}{4}$ to 4	16	6.00	6-U
7-U	$2\frac{1}{2}$ to 5	21	8.00	7-U



## ARMSTRONG CLAMP LATHE DOGS

Drop Forged Steel



The under face of screw heads is convex, fitting into a concave seat, and as the holes in upper bar are larger than the screw, this allows for considerable tilting without bending the screws. The clamp bars are forged from a stiff, open hearth steel, carefully machined and hardened. Screws are hardened. Each dog is boxed separately.

No.	Capacity Inches Between Screws	Weight Each Pounds	Extra Screws Each	Price Each Complete	No.
11	1 $\frac{3}{4}$	$\frac{5}{8}$	\$0.10	\$1.50	11
12	2 $\frac{1}{4}$	1	.15	2.00	12
13	2 $\frac{3}{4}$	1 $\frac{3}{4}$	.20	2.50	13
14	3 $\frac{1}{2}$	2 $\frac{3}{4}$	.30	3.50	14



ARMSTRONG BROS.

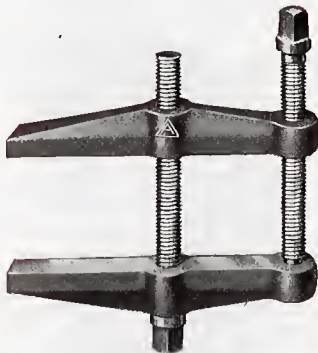


TOOL CO., CHICAGO



## ARMSTRONG MACHINISTS' CLAMPS

Drop Forged Steel



These clamps are forged from a stiff, open hearth steel, carefully machined and hardened. The under face of center screw is convex, fitting into a concave seat to allow for tilting. Jaws are extra heavy, will not bend or spring on a short bite and are faced true. Screws are hardened. Each clamp is boxed separately.

No.	Capacity	Weight Each Pounds	Extra Screws Each	Price Each Complete	No.
1	Opens to 1 $\frac{1}{4}$ in.	$\frac{3}{4}$	\$0.10	\$1.50	1
2	Opens to 2 $\frac{1}{4}$ in.	1	.12	2.00	2
3	Opens to 3 $\frac{1}{4}$ in.	1 $\frac{3}{4}$	.15	2.50	3
4	Opens to 4 $\frac{1}{4}$ in.	2 $\frac{3}{4}$	.20	3.00	4

In ordering extra screws it is necessary to specify whether center or heel screw is wanted.



## ARMSTRONG "C" CLAMPS

Heavy Design with Long Hub and Extra Large Alloy Steel Screw  
Drop Forged Steel



In design, quality of material and accuracy of machining, our "C" Clamps in every respect meet the demand for a strong, strictly high grade, reliable clamp. Each clamp is boxed separately.

No.	Capacity Inches		Depth Center of Screw to Back In.	Diam. of Screw Inches	Weight Each Pounds	Extra Screws Each	Price Each Complete	No.
	Max.	Min.						
9	3/4	0	3/4	3/8	1/2	\$0.10	\$ 0.50	
10	1 1/4	1/4	1 1/8	7/16	3/4	.12	.75	1
11	1 3/4	1/2	1 1/2	9/16	1 3/4	.16	1.25	1
12	2 1/4	7/8	1 7/8	1 1/16	3 1/2	.24	1.75	1
13	3 1/4	1 1/4	2 1/4	1 3/16	6	.40	2.50	1
14	4 1/2	1 3/4	2 3/4	1 5/16	10	.60	3.25	1
15	5 1/2	2 1/2	3 1/4	1	13 1/2	.75	4.00	1
16	6 1/2	3 1/4	3 1/2	1 1/8	18 1/2	1.00	5.00	1
18	8 1/2	4 1/2	3 3/4	1 1/4	25	1.50	7.00	1
20	10 1/2	6	3 7/8	1 1/4	30	1.75	9.50	2
22	12 1/2	7 1/2	4	1 1/4	32	2.00	12.50	2

NOTE—Heavy "C" clamps with full length screws can be furnished at special price



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG "C" CLAMPS

Drop Forged Steel—For Medium Service



This clamp is well adapted to that wide field of work which does not require the extra weight and extreme stiffness which make our heavy clamp unequalled for the very hardest service. The design and careful selection of material used combine in this clamp the maximum of strength and stiffness consistent with convenient weight. Each clamp is boxed separately.

No.	Capacity Inches		Depth Center of Screw to Back In.	Diam. of Screw Inches	Weight Each Pounds	Extra Screws with Handle and Swivel Each	Price Each Complete	No.
	Max.	Min.						
0	2	0	1½	½	1¼	\$0.50	\$1.75	0
1	3	1	2	5⁄8	2½	.60	2.00	1
2	4	2	2¾	¾	4	.70	2.25	2
3	6	3	2½	¾	6	.70	2.75	3
4	8	4	2⅝	¾	7¼	.70	3.25	4
5	10	6	2¾	¾	8½	.70	3.75	5
6	12	8	2⅞	7⁄8	11½	1.20	4.25	6
7	15	10	3⅞	7⁄8	14	1.20	5.50	7
8	18	12	3¼	7⁄8	18	1.20	7.00	8

No. 2 clamp fitted with No. 4 screw (reaching down to foot of clamp) can be furnished at list price of No. 3 clamp.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG MACHINE STRAP CLAMPS

Drop Forged Steel

For holding down work, dies, fixtures, etc., on Planers, Punch Presses, Milling Machines, Boring Mills and Drill Presses. Stiff, strong and convenient.



Plain Clamp

No.	Length Inches	Width Inches	Thickness Inches	Size of Slot Inches		Weight Each Pounds	Price Each	No.
				Width	Length			
54	4	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1	\$0.30	54
56	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	2 $\frac{1}{16}$	1 $\frac{3}{4}$	.50	56
58	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{13}{16}$	3 $\frac{3}{4}$	.85	58
59	10	2 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{5}{16}$	3 $\frac{11}{16}$	7	1.40	59



Screw Heel Clamp

No.	Length Inches	Width Inches	Thickness Inches	Size of Slot Inches		Weight Each Pounds	Price Each	No.
				Width	Length			
54-A	4	1 $\frac{5}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{3}{8}$	1 $\frac{1}{8}$	\$0.55	54-A
56-A	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	2 $\frac{1}{16}$	2	.85	56-A
58-A	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{13}{16}$	4	1.30	58-A
59-A	10	2 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{5}{16}$	3 $\frac{11}{16}$	7 $\frac{1}{4}$	2.00	59-A



Goose Neck Clamp

No.	Length Inches	Width Inches	Thickness Inches	Size of Slot Inches		Offset Inches	Weight Each Pounds	Price Each	No.
				Width	Length				
74	4	1 $\frac{3}{8}$	$\frac{3}{4}$	1 $\frac{1}{16}$	1 $\frac{5}{16}$	1 $\frac{3}{16}$	1	\$0.30	74
76	6	1 $\frac{3}{4}$	$\frac{7}{8}$	1 $\frac{1}{16}$	1 $\frac{11}{16}$	1 $\frac{5}{16}$	2	.50	76
78	8	2 $\frac{1}{8}$	1 $\frac{1}{8}$	1 $\frac{3}{16}$	2 $\frac{7}{16}$	1 $\frac{1}{8}$	4 $\frac{1}{4}$	.85	78



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG MACHINE STRAP CLAMPS

Drop Forged Steel

These clamps will save machines from standing idle while the operators hunt in the junk pile for a piece of scrap with which to clamp down a job. Such methods are old fashioned, expensive and unsafe.



Double Finger Clamp

No.	Length Inches	Width Inches	Thickness Inches	Diam. Hole Inches	Size of Fingers Inches		Weight Each Pounds	Price Each	No.
					Diam.	Length			
30	3	1 1/2	5/8	1 1/16	1/2	1/2	3/8	\$0.20	30
35	3 1/2	1 5/8	3/4	1 1/16	5/8	5/8	5/8	.25	35
40	4	1 13/16	7/8	1 3/16	3/4	3/4	7/8	.35	40



Finger Clamp

No.	Length Inches	Width Inches	Thickness Inches	Size of Slot Inches		Size of Finger In.		Weight Each Pounds	Price Each	No.
				Wth.	Lth.	Diam.	Lth.			
44	4	1 3/8	3/4	1 1/16	1 3/8	1/2	1/2	8/4	\$0.30	44
46	6	1 3/4	7/8	1 1/16	1 15/16	5/8	5/8	1 1/2	.50	46
48	8	2 1/8	1 1/8	1 3/16	2 9/16	3/4	3/4	3	.85	48



"U" Clamp

No.	Length Inches	Width Inches	Thickness Inches	Size of Slot Inches		Size of Finger In.		Weight Each Pounds	Price Each	No.
				Wth.	Lth.	Diam.	Lth.			
64	4	1 3/4	3/4	1 1/16	3 1/2	9/16	9/16	1	\$0.30	64
66	6	2	7/8	1 1/16	5 1/2	1 1/16	1 1/16	2	.50	66
68	8	2 3/8	1 1/8	1 3/16	7 3/8	1 3/16	1 3/16	4	.85	68
110	10	2 3/4	1 1/4	1 5/16	9	1 5/16	1 5/16	6 1/2	1.25	110
112	12	3 1/4	1 3/4	1 1/16	11	1 1/16	1 1/16	11	1.85	112



ARMSTRONG BROS.

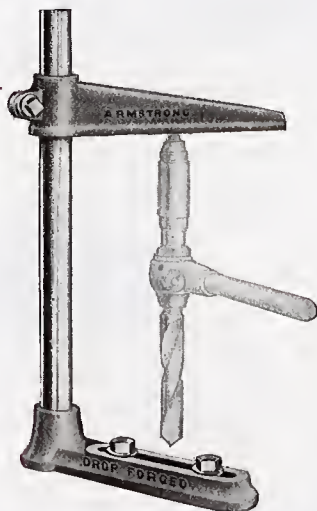


TOOL CO., CHICAGO



## ARMSTRONG DRILLING POST (Old Man)

For Use with Ratchet Drills—Drop Forged Steel



Foot and Arm are Drop Forged. The finished steel post is screwed into foot and can be easily removed for packing in tool kit. Each Drilling Post is boxed separately.

No.	Height of Post Inches	Diameter of Post Inches	Arm Radius Inches	Weight Each Pounds	Price Each	No.
8	16	1	8	9	\$5.00	8
10	20	1 $\frac{1}{4}$	10	16	7.00	10
12	26	1 $\frac{1}{2}$	12	30	10.00	12





ARMSTRONG BROS.

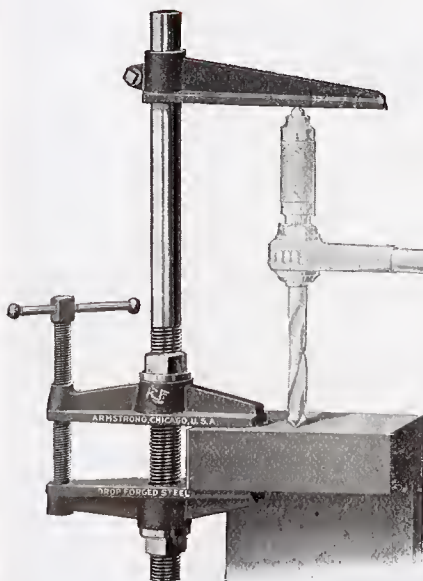


TOOL CO., CHICAGO



## ARMSTRONG ADJUSTABLE CLAMP DRILLING POST

Drop Forged Steel



Exceptionally well designed and made from drop forged and bar steel throughout, with alloy steel heel screw. Collar screw and nuts are hardened.

The nuts have convex bearing surface fitting concave seat in clamp jaws and holes through jaws have ample clearance thus permitting the clamp jaws to tilt freely without danger of bending the post. Especially convenient and well adapted to meet the requirements of BRIDGE and STRUCTURAL IRON WORKERS.

Each Drilling Post is boxed separately.

No.	Height of Post Inches	Diam. of Post Inches	Arm Radius Inches	Capacity Clamp Inches	Weight Each Pounds	Price Each	No.
C - 8	16	1	8	4	16	\$ 7.00	C - 8
C - 10	20	1¼	10	4½	27	9.00	C - 10
C - 12	26	1½	12	5	42	12.00	C - 12



## MORSE TAPER DRILL SLEEVES

Made from Bar Steel



Our sleeves are accurate in dimensions and taper, and well finished in every respect.

No.	Size		Takes Morse Taper Drills Inches	Weight Each Pounds	Price Each	No.
	Inside	Outside				
1-2	No. 1 Morse	No. 2 Morse	$\frac{1}{16}$ to $\frac{9}{16}$	$\frac{1}{4}$	\$1.80	1-2
1-3	" 1 "	" 3 "	$\frac{1}{16}$ to $\frac{9}{16}$	$\frac{1}{2}$	2.40	1-3
2-3	" 2 "	" 3 "	$\frac{37}{64}$ to $\frac{29}{32}$	$\frac{3}{8}$	2.40	2-3
2-4	" 2 "	" 4 "	$\frac{37}{64}$ to $\frac{29}{32}$	$1\frac{1}{8}$	3.00	2-4
3-4	" 3 "	" 4 "	$\frac{59}{64}$ to $1\frac{1}{4}$	$\frac{7}{8}$	3.00	3-4
3-5	" 3 "	" 5 "	$\frac{59}{64}$ to $1\frac{1}{4}$	$3\frac{1}{4}$	4.40	3-5
4-5	" 4 "	" 5 "	$1\frac{17}{64}$ to 2	$2\frac{1}{2}$	4.40	4-5

## SQUARE TAPER DRILL SOCKETS

With Morse Taper Shank. Made from Bar Steel



No.	Size of Shank	Takes Drills with Square Taper Shanks	Weight Each Pounds	Price Each	No.
1	No. 1 Morse	Standard Bit Stock Shank	$\frac{1}{8}$	\$1.00	1
2	" 2 "	No. 1 Shank $\frac{3}{8}$ in. x $\frac{5}{8}$ in. Sq.*	$\frac{3}{8}$	1.25	2
3	" 3 "	" 1 " $\frac{3}{8}$ " x $\frac{5}{8}$ " "	$\frac{3}{4}$	1.50	3
3 $\frac{1}{2}$	" 4 "	" 1 " $\frac{3}{8}$ " x $\frac{5}{8}$ " "	$1\frac{1}{2}$	1.75	3 $\frac{1}{2}$
4	" 4 "	" 2 " $\frac{1}{2}$ " x $\frac{3}{4}$ " "	$1\frac{3}{8}$	1.75	4
5	" 5 "	" 2 " $\frac{1}{2}$ " x $\frac{3}{4}$ " "	$2\frac{3}{4}$	2.50	5

\*Sizes given are the dimensions at small and large end of drill shank.



## BLACKSMITHS' DRILL SOCKETS

With Morse Taper Shank. Made from Bar Steel



Taking Blacksmiths' drills from  $\frac{1}{8}$  in. to  $1\frac{1}{2}$  in. with shanks  $\frac{1}{2}$  in. or  $\frac{5}{8}$  in. diameter.

No.	Size of Socket	Size of Shank Morse Taper	Weight Each Pounds	Price Each	No.
02	$\frac{1}{2}$ in. Diam.	No. 2 Morse Taper	$\frac{5}{8}$	\$1.50	02
03	$\frac{1}{2}$ " "	" 3 " "	$\frac{7}{8}$	1.75	03
003	$\frac{5}{8}$ " "	" 3 " "	1	1.75	003
04	$\frac{1}{2}$ " "	" 4 " "	$1\frac{3}{4}$	2.00	04
004	$\frac{5}{8}$ " "	" 4 " "	$1\frac{5}{8}$	2.00	004

## BLACKSMITHS' DRILL SOCKETS

With Square Taper Shank. Made from Bar Steel

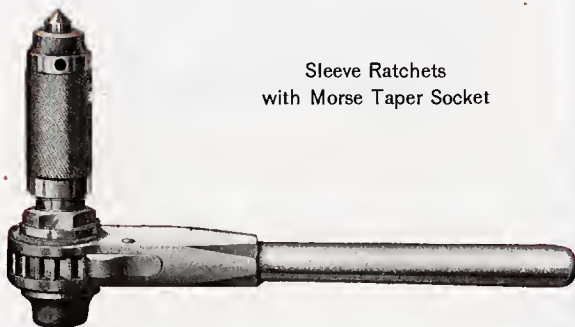


Taking Blacksmiths' drills from  $\frac{1}{8}$  in. to  $1\frac{1}{2}$  in. with shanks  $\frac{1}{2}$  in. or  $\frac{5}{8}$  in. diameter.

No.	Size of Socket	Size of Shank	Weight Each Pounds	Price Each	No.
0	$\frac{1}{2}$ in. Diam.	No. 1 Square Taper	$\frac{5}{8}$	\$1.25	0
00	$\frac{5}{8}$ " "	" 1 " "	$\frac{5}{8}$	1.25	00
01	$\frac{1}{2}$ " "	" 2 " "	$\frac{3}{4}$	1.50	01
001	$\frac{5}{8}$ " "	" 2 " "	$\frac{3}{4}$	1.50	001



## ARMSTRONG IMPROVED PACKER RATCHET DRILLS



Sleeve Ratchets  
with Morse Taper Socket

Our Packer Ratchets embody the following advantages and improvements: All parts are steel, hardened; no small screws—spindle bears on a strong collar nut; extra strong teeth and pawl, large key and ample bearings; have shorter head with full length feed; the pawl drives on drill shank, not above it.

Each Ratchet is boxed separately.

No.	Length Inches	Size of Drill Socket	Takes Morse Taper Drill Inches	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
1-M	10	No. 2 Morse	$37/64$ to $29/32$	6	$2\frac{1}{4}$	4	\$5.75	1-M
2-M	12	" 3 "	$59/64$ to $1\frac{1}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	6	7.25	2-M
3-M	15	" 3 "	$59/64$ to $1\frac{1}{4}$	$7\frac{3}{4}$	3	8	9.00	3-M
4-M	18	" 4 "	$1\frac{17}{64}$ to 2	9	$3\frac{1}{2}$	12	11.25	4-M
5-M	21	" 4 "	$1\frac{17}{64}$ to 2	$9\frac{3}{4}$	4	15	13.50	5-M
6-M	30	" 5 "	$2\frac{1}{64}$ to 3	$12\frac{1}{2}$	$4\frac{1}{2}$	35	35.00	6-M

By means of sleeves and sockets listed on pages 70 and 71, Packer Ratchets with Morse Taper Sockets can be made to take smaller sized drills, and drills with square taper and blacksmiths' shank.

NOTE—Also made with railroad pattern Hexagon Feed Sleeve (except No. 6-M), same price as above, see page 74.



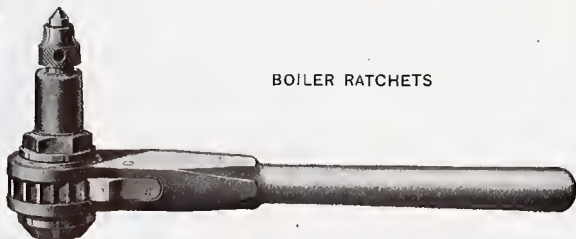
## ARMSTRONG IMPROVED PACKER RATCHET DRILLS

SLEEVE RATCHETS  
WITH SQUARE TAPER SOCKET



No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
1	10	No. 1 Square Taper*	6	2 $\frac{1}{4}$	4	\$ 5.75	1
2	12	" 1 " "	6 $\frac{3}{4}$	2 $\frac{1}{2}$	6	7.25	2
3	15	" 1 " "	7 $\frac{3}{4}$	3	8 $\frac{3}{4}$	9.00	3
4	18	" 2 " " †	9	3 $\frac{1}{2}$	12	11.25	4
5	21	" 2 " "	9 $\frac{3}{4}$	4	16	13.50	5

## BOILER RATCHETS



No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
1-B	10	No. 1 Square Taper*	4 $\frac{3}{8}$	1 $\frac{1}{2}$	3 $\frac{1}{4}$	\$ 5.00	1-B
2-B	12	" 1 " "	5	1 $\frac{3}{4}$	5	6.00	2-B
3-B	15	" 1 " "	5 $\frac{1}{2}$	2	7 $\frac{1}{2}$	7.25	3-B
4-B	18	" 2 " " †	6	2 $\frac{1}{4}$	10	8.50	4-B
5-B	21	" 2 " "	6 $\frac{1}{2}$	2 $\frac{1}{2}$	12	10.25	5-B

\*Taking drill shank  $\frac{3}{8}$  in. sq. at small end and  $\frac{5}{8}$  in. sq. at large end.

†Taking drill shank  $\frac{1}{2}$  in. sq. at small end and  $\frac{3}{4}$  in. sq. at large end.

NOTE—By means of sockets listed on page 71 these Ratchets can be adapted to use of blacksmiths' drills with round shank.



## ARMSTRONG "RAILROAD" PACKER RATCHET DRILLS



ALL STEEL  
HARDENED THROUGHOUT

No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
1-R R	10	No. 1 Square Taper*	6	2 $\frac{1}{4}$	4	\$ 5.75	1-R R
2-R R	12	" 1 " "	6 $\frac{3}{4}$	2 $\frac{1}{2}$	6	7.25	2-R R
3-R R	15	" 1 " "	7 $\frac{3}{4}$	3	9	9.00	3-R R
4-R R	18	" 2 " " †	9	3 $\frac{1}{2}$	12	11.25	4-R R
5-R R	21	" 2 " "	9 $\frac{3}{4}$	4	16	13.50	5-R R

\*Taking drill shank  $\frac{3}{8}$  in. sq. at small end,  $\frac{5}{8}$  in. sq. at large end.

†Taking drill shank  $\frac{1}{2}$  in. sq. at small end  $\frac{3}{4}$  in. sq. at large end.

NOTE—By means of sockets listed on page 71 these ratchets can be adapted to the use of blacksmiths' drills with round shank.

### Railroad Pattern Packer Ratchets for Morse Taper Shank Drills

We can furnish Railroad Ratchets with Morse Taper Sockets at prices listed on page 72. When ordering same, use regular catalogue number, but specify "Railroad Pattern."



## ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS

To meet the demand for a general service ratchet, we present to the trade our complete line of Standard Reversible Ratchet Drills, which for design, workmanship and wear resisting qualities we believe to be unequalled.

They are made of steel throughout and all parts are hardened with the exception of the handle, which is polished.

The reversing "jigger" is well protected and conveniently located, while the end of the handle is finished round and smooth for the operator's hand. Each Ratchet is packed separately in a cardboard box.



SLEEVE RATCHETS  
WITH MORSE TAPER SOCKET

No.	Length Inches	Size of Drill Socket	Takes Morse Taper Drills Inches*	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
9-M	9	No. 1 Morse	$\frac{1}{16}$ to $\frac{9}{16}$	5	2	$1\frac{3}{4}$	\$5.00	9-M
12-M	12	No. 2 "	$\frac{3}{16}$ to $\frac{29}{32}$	6	$2\frac{1}{4}$	4	5.25	12-M
15-M	15	No. 3 "	$\frac{5}{16}$ to $1\frac{1}{4}$	$6\frac{3}{4}$	$2\frac{1}{2}$	$6\frac{1}{4}$	6.00	15-M
18-M	18	No. 3 "	$\frac{5}{16}$ to $1\frac{1}{4}$	$7\frac{3}{4}$	3	$9\frac{1}{4}$	7.00	18-M
22-M	22	No. 4 "	$1\frac{1}{16}$ to 2	9	$3\frac{1}{2}$	13	8.00	22-M

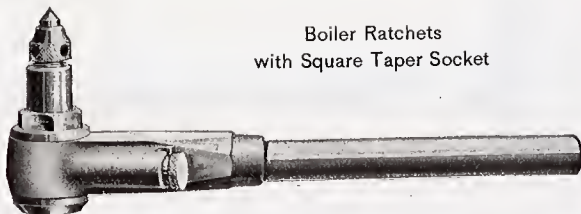
\*By means of sleeves and sockets listed on pages 70 and 71, Standard Ratchets with Morse Taper Sockets can be made to take smaller sized drills, and drills with square taper and blacksmiths' shank.



## ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS

Sleeve Ratchets  
with Square Taper Socket

No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
9	9	St'd Bit Stock Taper	5	2	1 $\frac{3}{4}$	\$4.75	9
12	12	No. 1 Square Taper*	6	2 $\frac{1}{4}$	4	5.00	12
15	15	" 1 " "	6 $\frac{3}{4}$	2 $\frac{1}{2}$	6 $\frac{1}{4}$	5.75	15
18	18	" 1 " "	7 $\frac{3}{4}$	3	9 $\frac{1}{2}$	6.75	18
22	22	" 2 " " †	9	3 $\frac{1}{2}$	13 $\frac{1}{2}$	7.75	22



Boiler Ratchets  
with Square Taper Socket

No.	Length Inches	Size of Drill Socket	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
9-B	9	St'd Bit Stock Taper	3 $\frac{1}{4}$	1 $\frac{1}{8}$	1 $\frac{1}{2}$	\$4.50	9-B
12-B	12	No. 1 Square Taper*	4 $\frac{3}{8}$	1 $\frac{1}{2}$	3 $\frac{1}{2}$	4.75	12-B
15-B	15	" 1 " "	5	1 $\frac{3}{4}$	5 $\frac{1}{2}$	5.50	15-B
18-B	18	" 1 " "	5 $\frac{1}{2}$	2	8	6.50	18-B
22-B	22	" 2 " " †	6	2 $\frac{1}{4}$	11 $\frac{1}{2}$	7.50	22-B

\*Taking drill shank  $\frac{3}{8}$  in. sq. at small end and  $\frac{5}{8}$  in. sq. at large end.

†Taking drill shank  $\frac{1}{2}$  in. sq. at small end and  $\frac{3}{4}$  in. sq. at large end.

NOTE—By means of sockets listed on page 71 these ratchets can be adapted to use of blacksmiths' drills with round shank.





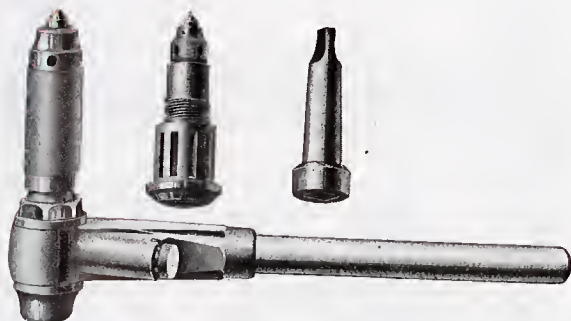
ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG "STANDARD" REVERSIBLE RATCHET DRILLS



Standard Ratchet Combination

The combination includes Sleeve Ratchet for Morse Taper Shank Drills, square taper socket to fit same and a short spindle with feed crew by means of which the Ratchet can be converted into a Boiler Ratchet or adapted to use square taper shank drills.

No.	Length Inches	Size of Drill Sockets	Weight Each Pounds	Price Complete	No.
9-C	9	St'd Bit Stock and No. 1 Morse	2½	\$ 7.50	9-C
12-C	12	No. 1 Square Taper and No. 2 Morse	5¼	7.75	12-C
15-C	15	No. 1 Square Taper and No. 3 Morse	8	9.00	15-C
18-C	18	No. 1 Square Taper and No. 3 Morse	12	10.75	18-C
22-C	22	No. 2 Square Taper and No. 4 Morse	17	11.50	22-C

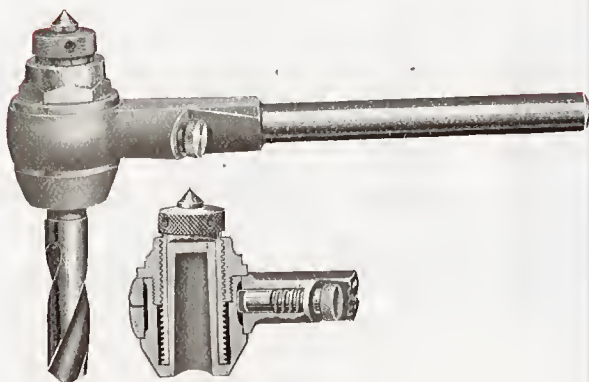


## ARMSTRONG SHORT RATCHET DRILL

Patented

For Drills with Morse Taper Shank

SHORT HEAD—LONG FEED—REVERSIBLE



The Sectional View shows clearly the construction, which is simple, compact and strong. All parts are made from Drop Forging or Bar Steel. Pawl and center are tool steel, carefully tempered. It is self-discharging and can be reversed instantly. Each Ratchet Drill is boxed separately.

New Number	Socket	Length Inches	Length Head Inches	Feed Inches	Weight Each Pounds	Price Each	Old Number
62-R	No. 3 Morse	12	3 $\frac{3}{4}$	2 $\frac{1}{2}$	6 $\frac{3}{4}$	\$ 8.00	2-R
63-R	" 3 "	18	3 $\frac{3}{4}$	2 $\frac{1}{2}$	9	10.00	3-R

## EXTRA SPINDLES

Spindle with Nut and Feed Screw, each.....\$3

NOTE—Style A and E Spindles for Square Taper Shank Drills (see next page) are interchangeable with Style R. By means of Sleeves and Sockets listed on pages 70 and 71, Style R Spindle can be adapted to take smaller sizes of Morse Taper Shank Drills and drills with Square Taper and Blacksmiths' Shanks.



ARMSTRONG BROS.



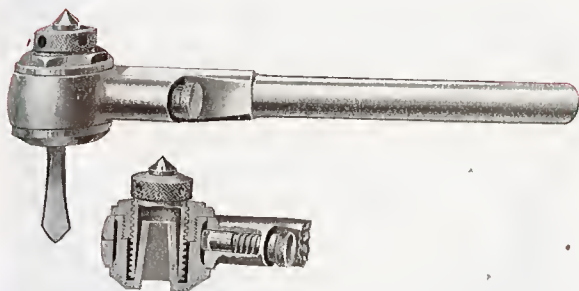
TOOL CO., CHICAGO



## ARMSTRONG SHORT RATCHET DRILL

Patented

For Drills with Square Taper Shank



This is the very shortest ratchet drill made, length of feed considered, and will be found extremely useful wherever holes have to be drilled in places where height of space is limited. Its short head, strength, compactness and quick reverse make it a perfect boiler ratchet. All parts are drop forged or made from bar steel. Pawl and center are tool steel, carefully tempered. Each Ratchet is boxed separately.

New Number	Socket Square Taper	Length Inches	Length Head Inches	Feed Inches	Weight Each Pounds	Price Each	Old Number
62-A	No. 1	12	2 $\frac{3}{4}$	1 $\frac{1}{2}$	6	\$ 8.00	2-A
62-E	" 2	12	2 $\frac{3}{4}$	1 $\frac{1}{2}$	6	8.00	2-E
63-A	" 1	18	2 $\frac{3}{4}$	1 $\frac{1}{2}$	8	10.00	3-A
63-E	" 2	18	2 $\frac{3}{4}$	1 $\frac{1}{2}$	8	10.00	3-E

## EXTRA SPINDLES

Spindle with Nut and Feed Screw, each . . . . . \$3.50

NOTE—Style R Spindles for Morse Taper Shank Drills (see page 78) are interchangeable with styles A and E. By means of sockets listed on page 71, this ratchet can be adapted to use of blacksmiths' drills with round shank.



ARMSTRONG BROS.



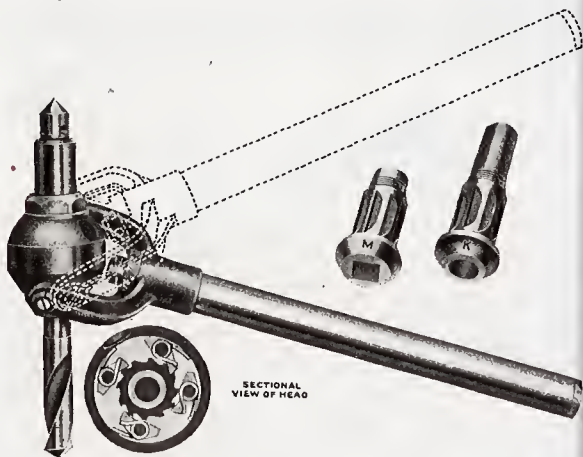
TOOL CO., CHICAGO



## ARMSTRONG UNIVERSAL RATCHET DRILL

Patented

Simple, strong—no ball joints or bevel gears. Made from drop forgings and bar steel. All working parts hardened. Drills 10 per cent faster than an ordinary ratchet. Two inches of motion at end of handle, in any direction, will drive the drill.



## Description of the Mechanical Motion

The universal motion of the ratchet is due to the fact that the axis of the two trunnions on which the handle turns is at an angle with the axis of the drill. Set the fixing screw up into one of the three countersinks and you have a rigid handle, as in a common ratchet. In two of these fixed positions the handle stands at an angle out of the way of possible obstructions. In No. 6 Ratchet there are twelve large teeth in the ratchet and pawls, which engage one at a time. Thus the pawls catch six times in a revolution, decreasing lost motion 80 per cent.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG UNIVERSAL RATCHET DRILL

Patented

For use where other ratchets are useless as well  
as on ordinary work

Some of the difficult situations where this tool will be found  
indispensable, paying for itself many times on a single job:

Confined places in setting up new work.  
Drilling and tapping pipes.  
Repairing boilers and steam pumps.  
Locomotive and heavy machinery repairs.  
Repairs on board ship.

In many cases the flexibility of the Universal Ratchet will save  
the delay and expense of disconnecting and dismounting heavy  
machinery and repay its cost many times over.

Each Ratchet is boxed separately.

New Number	Lgth. Inches	Drill Socket Taper	Length Head Inches	Feed Inches	Wght. Each P'nds	Extra Spindles Each	Price Each Com- plete	Old Number
64-M	14	No. 1 Square	4 $\frac{3}{8}$	1 $\frac{1}{2}$	5	\$2.40	\$12.00	4-M
64-K	14	" 2 Morse	5 $\frac{7}{8}$	1 $\frac{1}{2}$	5	2.40	12.00	4-K
65-J	16	" 1 Square	5 $\frac{1}{2}$	1 $\frac{7}{8}$	8	3.00	15.00	5-J
65-L	16	" 2 "	5 $\frac{1}{2}$	1 $\frac{7}{8}$	8	3.00	15.00	5-L
65-O	16	" 3 Morse	7	1 $\frac{7}{8}$	8	3.00	15.00	5-O
66-F	18	" 2 Square	5 $\frac{7}{8}$	2 $\frac{1}{4}$	12	3.60	18.00	6-F
66-N	18	" 3 Morse	7 $\frac{3}{8}$	2 $\frac{1}{4}$	12	3.60	18.00	6-N
66-S	18	" 4 "	7 $\frac{5}{8}$	2 $\frac{1}{4}$	12	3.60	18.00	6-S

M and K spindles are interchangeable in No. 4 Ratchet, J, L and O in No. 5 Ratchet and  
F, N and S in No. 6 Ratchet.

NOTE—By means of Sleeves and Sockets listed on pages 70 and 71, Spindles can be  
made to take smaller sizes of Morse Taper Shank Drills, Drills with Square Taper  
Shanks and Blacksmith Drills.



## ARMSTRONG-WESTON RATCHET DRILLS

DIFFERENTIAL ACTING

The Strongest Ratchet Made.  
For Square Taper Shank Drills Only.

## ARMSTRONG-WESTON SLEEVE RATCHETS

No.	Length Inches	Drill Socket Taper	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
1-W	12	No. 1 Square*	6 $\frac{7}{8}$	2 $\frac{1}{2}$	6 $\frac{1}{2}$	\$ 7.60	1-W
2-W	14	" 1 " *	6 $\frac{7}{8}$	2 $\frac{1}{2}$	6 $\frac{3}{4}$	8.00	2-W
3-W	16	" 1 " *	6 $\frac{7}{8}$	2 $\frac{1}{2}$	7 $\frac{1}{4}$	8.75	3-W
4-W	18	" 2 " †	8	3	10 $\frac{1}{2}$	9.75	4-W
5-W	20	" 2 " †	8	3	11	10.75	5-W
6-W	22	" 2 " †	8	3	11 $\frac{1}{2}$	11.75	6-W



## ARMSTONG-WESTON BOILER RATCHETS

No.	Length Inches	Drill Socket Taper	Length of Head Inches	Feed Inches	Weight Each Pounds	Price Each	No.
1-W-B	12	No. 1 Square*	4 $\frac{1}{2}$	1 $\frac{3}{4}$	5	\$7.60	1-W-B
2-W-B	14	" 1 " *	4 $\frac{1}{2}$	1 $\frac{3}{4}$	5 $\frac{1}{2}$	8.00	2-W-B

\*Taking drill shank  $\frac{3}{8}$  in. sq. at small end and  $\frac{5}{8}$  in. sq. at large end.

†Taking drill shank  $\frac{1}{2}$  in. sq. at small end and  $\frac{3}{4}$  in. sq. at large end.



## ARMSTRONG DROP FORGED WRENCHES

Our wrenches are forged from steel which careful tests and analysis have shown to possess the requisite qualities to give both stiffness and tensile strength.

The designs and proportions are based upon practical knowledge of wrench requirements, while modern equipment and manufacturing methods insure accuracy and uniformity in both machining and finish.

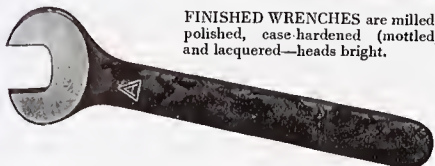
Wrenches are listed and furnished in three classes: Unfinished, Semi-finished and Finished.



UNFINISHED WRENCHES,  
forgings are milled only.



SEMI-FINISHED WRENCHES  
are milled, case-hardened and have  
heads ground bright.



FINISHED WRENCHES are milled,  
polished, case-hardened (mottled)  
and lacquered—heads bright.

**STOCK MILLING**—All openings are milled slightly larger than sizes specified in tables to allow for proper clearance and variation in nuts, etc.

**SPECIAL MILLING** to order, without extra charge, in lots of 100 or more of any size for which we have the necessary tools.

When ordering be careful to specify catalogue numbers and state whether Unfinished, Semi-finished or Finished wrenches are wanted; Semi-finished wrenches will be shipped when not otherwise specified.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ENGINEERS' WRENCHES

FLARED HANDLE, 15° ANGLE, SINGLE HEAD



In stock as listed, with Openings for U. S. Standard Finished Nuts. For Stock Whitworth and Metric Wrenches see page 113. For special milling see page 83.

No.	For U. S. Stand- ard Nut Size Bolt Inches	Opening Milled Inches	Ex- treme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
00	1/8	5/16	3	1/16	\$0.09	\$0.14	\$0.22	00
0	3/16	13/32	3 1/2	1/12	.10	.15	.25	0
1	1/4	1/2	4	1/6	.12	.18	.28	1
2	5/16	19/32	5	1/4	.15	.22	.32	2
3	3/8	11/16	6	1/3	.18	.26	.38	3
4	7/16	25/32	7	1/2	.22	.32	.45	4
5	1/2	7/8	8	2/3	.26	.38	.54	5
6	9/16	31/32	9	1	.31	.46	.65	6
7	5/8	1 1/16	10	1 1/4	.40	.57	.82	7
8	3/4	1 1/4	11 1/2	1 3/4	.55	.75	1.05	8
9	7/8	1 7/16	13	2	.85	1.15	1.52	9
10	1	1 5/8	15	4	1.20	1.60	2.10	10





ARMSTRONG BROS.



TOOL CO., CHICAGO



## ENGINEERS' WRENCHES

TAPERED HANDLE, 15° ANGLE, SINGLE HEAD



In stock as listed, with Openings for U. S. Standard Finished Nuts. For Stock Whitworth and Metric Wrenches see page 113. For special milling see page 83.

No.	For U. S. Standard Nut Size Bolt Inches	Opening Milled Inches	Ex- treme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
11	1 $\frac{1}{8}$	1 $\frac{13}{16}$	17	5	\$ 1.65	\$ 2.10	\$ 2.80	11
12	1 $\frac{1}{4}$	2	19	7	2.20	2.85	3.70	12
13	1 $\frac{3}{8}$	2 $\frac{3}{16}$	21	9	2.80	3.65	4.70	13
14	1 $\frac{1}{2}$	2 $\frac{3}{8}$	23	11	3.45	4.60	5.80	14
15	1 $\frac{5}{8}$	2 $\frac{9}{16}$	25	12 $\frac{1}{2}$	4.15	5.60	7.10	15
16	1 $\frac{3}{4}$	2 $\frac{3}{4}$	27	17	4.90	6.70	8.50	16
16 $\frac{1}{2}$	1 $\frac{7}{8}$	2 $\frac{15}{16}$	27	17	4.90	6.70	8.50	16 $\frac{1}{2}$
17	2	3 $\frac{1}{8}$	30	20	7.50	10.25	13.00	17
18	2 $\frac{1}{4}$	3 $\frac{1}{2}$	33	30	11.50	14.75	18.00	18
19	2 $\frac{1}{2}$	3 $\frac{7}{8}$	37	38	17.00	21.00	25.00	19
19 $\frac{1}{2}$	2 $\frac{3}{4}$	4 $\frac{1}{4}$	37	38	17.00	21.00	25.00	19 $\frac{1}{2}$
20	3	4 $\frac{5}{8}$	42	54	25.00	31.00	37.00	20



## ENGINEERS' WRENCHES

15° ANGLE, DOUBLE HEAD



In stock as listed, with Openings for U. S. Standard Finished Nuts.  
 For stock Whitworth and Metric Wrenches see page 113.  
 For Special Milling see page 83.  
 For carefully selected wrench sets see pages 120-130.

No.	For U. S. Standard Nuts Size Bolts Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
21	1/8 & 3/16	5/16 & 13/32	3 1/2	1/12	\$0.12	\$0.17	\$0.26	21
22	1/8 & 1/4	5/16 & 1/2	4	1/8	.14	.21	.32	22
23	3/16 & 1/4	13/32 & 1/2	4	1/8	.14	.21	.32	23
24	3/16 & 5/16	13/32 & 19/32	5	1/5	.17	.25	.38	24
25	1/4 & 5/16	1/2 & 19/32	5	1/5	.17	.25	.38	25
26	1/4 & 3/8	1/2 & 11/16	6	1/4	.21	.31	.46	26
27	5/16 & 3/8	19/32 & 11/16	6	1/4	.21	.31	.46	27
28	5/16 & 7/16	19/32 & 25/32	7	1/3	.25	.37	.56	28
29	3/8 & 7/16	11/16 & 25/32	7	1/3	.25	.37	.56	29
30	3/8 & 1/2	11/16 & 7/8	8	1/2	.30	.45	.68	30
31	7/16 & 1/2	25/32 & 7/8	8	1/2	.30	.45	.68	31
32	7/16 & 9/16	25/32 & 81/32	9	3/4	.37	.55	.85	32
33	1/2 & 9/16	7/8 & 81/32	9	3/4	.37	.55	.85	33
34	1/2 & 5/8	7/8 & 17/16	10	1 1/4	.46	.68	1.03	34
35	9/16 & 5/8	81/32 & 17/16	10	1 1/4	.46	.68	1.03	35
36	9/16 & 3/4	81/32 & 1 1/4	11 1/2	1 3/4	.66	.96	1.40	36
37	5/8 & 3/4	17/16 & 1 1/4	11 1/2	1 3/4	.66	.96	1.40	37
38	5/8 & 7/8	17/16 & 1 1/2	13	2 1/2	1.00	1.40	1.90	38
39	3/4 & 7/8	1 1/4 & 1 1/2	13	2 3/4	1.00	1.40	1.90	39
40	3/4 & 1	1 1/4 & 1 5/8	15	2 3/4	1.40	1.90	2.60	40
41	7/8 & 1	1 7/8 & 1 5/8	15	4	1.40	1.90	2.60	41

Continued on page 87

For wrenches fitting S. A. E. Standard Nuts and Cap Screws, see page 131.



## ENGINEERS' WRENCHES

15° ANGLE, DOUBLE HEAD

(Continued)



In stock as listed, with Openings for U. S. Standard Finished Nuts.  
 For stock Whitworth and Metric Wrenches see page 113.  
 For Special Milling see page 83.

No.	For U. S. Standard Nuts Size Bolts Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
42	$\frac{7}{8}$ & $1\frac{1}{8}$	$1\frac{7}{16}$ & $1\frac{13}{16}$	17	5	\$ 1.90	\$ 2.65	\$ 3.50	42
43	1 & $1\frac{1}{8}$	$1\frac{9}{8}$ & $1\frac{13}{16}$	17	5	1.90	2.65	3.50	43
44	1 & $1\frac{1}{4}$	$1\frac{5}{8}$ & 2	19	7	2.60	3.60	4.70	44
45	$1\frac{1}{8}$ & $1\frac{1}{4}$	$1\frac{13}{16}$ & 2	19	$7\frac{1}{2}$	2.60	3.60	4.70	45
46	$1\frac{1}{8}$ & $1\frac{3}{8}$	$1\frac{13}{16}$ & $2\frac{3}{16}$	21	$9\frac{1}{2}$	3.80	5.25	6.70	46
47	$1\frac{1}{4}$ & $1\frac{3}{8}$	2 & $2\frac{3}{16}$	21	10	3.80	5.25	6.70	47
48	$1\frac{1}{4}$ & $1\frac{1}{2}$	2 & $2\frac{3}{8}$	23	12	5.20	7.00	8.80	48
49	$1\frac{3}{8}$ & $1\frac{1}{2}$	$2\frac{3}{16}$ & $2\frac{3}{8}$	23	13	5.20	7.00	8.80	49
50	$1\frac{3}{8}$ & $1\frac{5}{8}$	$2\frac{3}{16}$ & $2\frac{9}{16}$	25	14	6.75	9.00	11.25	50
51	$1\frac{1}{2}$ & $1\frac{5}{8}$	$2\frac{3}{8}$ & $2\frac{9}{16}$	25	$15\frac{1}{2}$	7.40	9.90	12.40	51
52	$1\frac{1}{2}$ & $1\frac{3}{4}$	$2\frac{3}{8}$ & $2\frac{3}{4}$	27	$17\frac{1}{2}$	8.35	11.00	13.65	52
53	$1\frac{5}{8}$ & $1\frac{3}{4}$	$2\frac{9}{16}$ & $2\frac{3}{4}$	27	$18\frac{1}{2}$	9.00	12.00	15.00	53
53 $\frac{1}{2}$	$1\frac{5}{8}$ & $1\frac{7}{8}$	$2\frac{9}{16}$ & $2\frac{15}{16}$	27	18	10.00	13.00	16.00	53 $\frac{1}{2}$
54	$1\frac{5}{8}$ & 2	$2\frac{9}{16}$ & $3\frac{1}{8}$	31	24	11.00	14.25	17.50	54
55	$1\frac{3}{4}$ & 2	$2\frac{3}{4}$ & $3\frac{1}{8}$	31	26	12.00	15.50	19.00	55
55 $\frac{1}{2}$	$1\frac{7}{8}$ & 2	$2\frac{15}{16}$ & $3\frac{1}{8}$	31	26	13.50	17.00	20.50	55 $\frac{1}{2}$
56	$1\frac{3}{4}$ & $2\frac{1}{4}$	$2\frac{3}{4}$ & $3\frac{1}{2}$	34	32	16.00	20.00	24.00	56
56 $\frac{1}{2}$	$1\frac{7}{8}$ & $2\frac{1}{4}$	$2\frac{15}{16}$ & $3\frac{1}{2}$	34	32	17.00	21.00	25.00	56 $\frac{1}{2}$
57	2 & $2\frac{1}{4}$	$3\frac{1}{8}$ & $3\frac{1}{2}$	37	40	18.50	23.50	28.50	57
57 $\frac{1}{2}$	2 & $2\frac{1}{2}$	$3\frac{1}{8}$ & $3\frac{7}{8}$	37	39	23.00	28.00	33.00	57 $\frac{1}{2}$



ARMSTRONG BROS.



TOOL CO., CHICAGO



## CAP SCREW WRENCHES

15° ANGLE, SINGLE HEAD

For Hexagon Head Cap Screws



In stock as listed, with Openings for U. S. Standard Hexagon Head Cap Screws. For special milling see page 83.

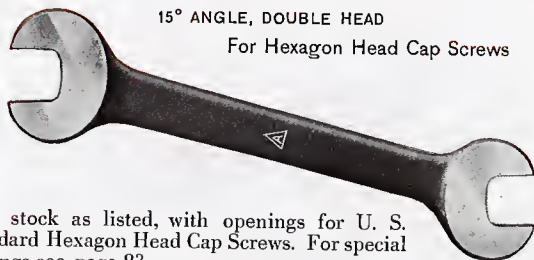
No.	For Hexagon Head Cap Screws Diameter Screw Inches	Opening Milled Inches	Ex- treme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
00-A	1/8	5/16	3	1/16	\$0.09	\$0.14	\$0.22	00-A
0-A	3/16	5/8	3 1/2	1/12	.10	.15	.25	0-A
1-A	1/4	7/16	4	1/6	.12	.18	.28	1-A
1-B	5/16	1/2	4	1/6	.12	.18	.28	1-B
2-A	3/8	9/16	5	1/4	.15	.22	.32	2-A
3-A	7/16	5/8	6	1/3	.18	.26	.38	3-A
4-A	1/2	3/4	7	1/2	.22	.32	.45	4-A
5-A	9/16	13/16	8	2/3	.26	.38	.54	5-A
5-B	5/8	7/8	8	2/3	.26	.38	.54	5-B
6-A	3/4	1	9	1	.31	.46	.65	6-A
7-A	7/8	1 1/8	10	1 1/4	.40	.57	.82	7-A
8-A	1	1 1/4	11 1/2	1 3/4	.55	.75	1.05	8-A
8-B	1 1/8	1 3/8	11 1/2	1 3/4	.55	.75	1.05	8-B
9-A	1 1/4	1 1/2	13	2	.85	1.15	1.52	9-A



## CAP SCREW WRENCHES

15° ANGLE, DOUBLE HEAD

For Hexagon Head Cap Screws



In stock as listed, with openings for U. S. Standard Hexagon Head Cap Screws. For special millings see page 83.

No.	For Hexagon Head Cap Screws Diam. Screws Inches	Openings Milled Inches	Ex- treme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
21-A	$\frac{1}{8}$ & $\frac{3}{16}$	$\frac{5}{16}$ & $\frac{3}{8}$	$3\frac{1}{2}$	$\frac{1}{12}$	\$0.12	\$0.17	\$0.26	21-A
22-A	$\frac{1}{8}$ & $\frac{1}{4}$	$\frac{5}{16}$ & $\frac{7}{16}$	4	$\frac{1}{8}$	.14	.21	.32	22-A
23-A	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{3}{8}$ & $\frac{7}{16}$	4	$\frac{1}{8}$	.14	.21	.32	23-A
23-B	$\frac{3}{16}$ & $\frac{5}{16}$	$\frac{3}{8}$ & $\frac{1}{2}$	4	$\frac{1}{8}$	.14	.21	.32	23-B
24-A	$\frac{3}{16}$ & $\frac{3}{8}$	$\frac{3}{8}$ & $\frac{9}{16}$	5	$\frac{1}{8}$	.17	.25	.38	24-A
25-A	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{7}{16}$ & $\frac{1}{2}$	5	$\frac{1}{8}$	.17	.25	.38	25-A
25-B	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{7}{16}$ & $\frac{9}{16}$	5	$\frac{1}{8}$	.17	.25	.38	25-B
25-C	$\frac{5}{16}$ & $\frac{3}{8}$	$\frac{1}{2}$ & $\frac{9}{16}$	5	$\frac{1}{8}$	.17	.25	.38	25-C
26-A	$\frac{5}{16}$ & $\frac{7}{16}$	$\frac{1}{2}$ & $\frac{5}{8}$	6	$\frac{1}{4}$	.21	.31	.46	26-A
27-A	$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{5}{16}$ & $\frac{5}{8}$	6	$\frac{1}{4}$	.21	.31	.46	27-A
28-A	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{5}{16}$ & $\frac{3}{4}$	7	$\frac{1}{8}$	.25	.37	.56	28-A
29-A	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{5}{8}$ & $\frac{3}{4}$	7	$\frac{1}{8}$	.25	.37	.56	29-A
30-A	$\frac{7}{16}$ & $\frac{9}{16}$	$\frac{5}{8}$ & $\frac{13}{16}$	8	$\frac{1}{2}$	.30	.45	.68	30-A
31-A	$\frac{1}{2}$ & $\frac{9}{16}$	$\frac{3}{4}$ & $\frac{13}{16}$	8	$\frac{1}{2}$	.30	.45	.68	31-A
31-B	$\frac{1}{2}$ & $\frac{5}{8}$	$\frac{3}{4}$ & $\frac{7}{8}$	8	$\frac{1}{2}$	.30	.45	.68	31-B
31-C	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{13}{16}$ & $\frac{7}{8}$	8	$\frac{1}{2}$	.30	.45	.68	31-C
32-A	$\frac{1}{2}$ & $\frac{3}{4}$	$\frac{3}{4}$ & 1	9	$\frac{3}{4}$	.37	.55	.85	32-A
32-B	$\frac{9}{16}$ & $\frac{3}{4}$	$\frac{13}{16}$ & 1	9	$\frac{3}{4}$	.37	.55	.85	32-B
33-A	$\frac{5}{8}$ & $\frac{3}{4}$	$\frac{7}{8}$ & 1	9	$\frac{3}{4}$	.37	.55	.85	33-A
34-A	$\frac{5}{8}$ & $\frac{7}{8}$	$\frac{7}{8}$ & $1\frac{1}{8}$	10	$1\frac{1}{4}$	.46	.68	1.08	34-A
35-A	$\frac{3}{4}$ & $\frac{7}{8}$	1 & $1\frac{1}{8}$	10	$1\frac{1}{4}$	.46	.68	1.08	35-A
36-A	$\frac{3}{4}$ & 1	1 & $1\frac{1}{4}$	$11\frac{1}{2}$	$1\frac{3}{4}$	.66	.96	1.40	36-A
37-A	$\frac{7}{8}$ & 1	$1\frac{1}{8}$ & $1\frac{1}{4}$	$11\frac{1}{2}$	$1\frac{3}{4}$	.66	.96	1.40	37-A
37-S	$\frac{7}{8}$ & $1\frac{1}{8}$	$1\frac{1}{8}$ & $1\frac{3}{8}$	$11\frac{1}{2}$	$1\frac{3}{4}$	.66	.96	1.40	37-S
38-A	$\frac{7}{8}$ & $1\frac{1}{8}$	$1\frac{1}{8}$ & $1\frac{3}{8}$	13	$2\frac{1}{2}$	1.00	1.40	1.90	38-A
39-A	1 & $1\frac{1}{8}$	$1\frac{1}{4}$ & $1\frac{3}{8}$	13	$2\frac{3}{4}$	1.00	1.40	1.90	39-A
39-B	1 & $1\frac{1}{4}$	$1\frac{1}{4}$ & $1\frac{1}{2}$	13	$2\frac{3}{4}$	1.00	1.40	1.90	39-B

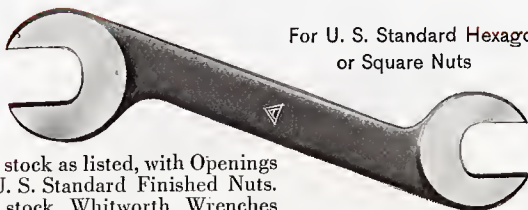
For carefully selected Wrench Sets see pages 120-130.

See page 131 for wrenches fitting S. A. E. Standard Nuts and Cap Screws.



## OFF-SET ANGLE WRENCHES

22½° ANGLE, DOUBLE HEAD

For U. S. Standard Hexagon  
or Square Nuts

In stock as listed, with Openings  
for U. S. Standard Finished Nuts.  
For stock Whitworth Wrenches  
see page 113. For Special Milling see page 83.

No.	For U. S. St'd Hex. or Sq. Size Bolts Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
671-A	3/16 & 1/4	13/32 & 1/2	4 1/2	1 1/7	\$0.17	\$0.25	\$0.38	671-A
671-B	3/16 & 5/16	13/32 & 19/32	4 1/2	1 1/7	.17	.25	.38	671-B
672-A	1/4 & 5/16	1/2 & 19/32	5 3/4	1 1/4	.21	.31	.46	672-A
672-B	5/16 & 3/8	19/32 & 11/16	5 3/4	1 1/4	.21	.31	.46	672-B
673-A	3/8 & 7/16	11/16 & 25/32	7	1 1/2	.27	.40	.60	673-A
673-B	3/8 & 1/2	11/16 & 7/8	7	1 1/2	.27	.40	.60	673-B
674-A	7/16 & 1/2	25/32 & 7/8	8 3/4	2 3/8	.36	.53	.78	674-A
674-B	1/2 & 9/16	7/8 & 31/32	8 3/4	2 3/8	.36	.53	.78	674-B
675-A	1/2 & 5/8	7/8 & 1 1/16	9 1/2	1	.50	.72	1.05	675-A
675-B	9/16 & 5/8	31/32 & 1 1/16	9 1/2	1	.50	.72	1.05	675-B
676-A	5/8 & 3/4	1 1/16 & 1 1/4	11	1 3/4	.68	.96	1.40	676-A
676-B	3/4 & 7/8	1 1/4 & 1 1/16	11	1 3/4	.68	.96	1.40	676-B
677-A	7/8 & 1	1 3/4 & 1 9/8	13	3 1/2	1.15	1.75	2.35	677-A
677-B	1 & 1 1/8	1 5/8 & 1 13/16	13	3 1/2	1.15	1.75	2.35	677-B
678-A	1 1/8 & 1 1/4	1 13/16 & 2	15	6	1.95	2.90	3.90	678-A
678-B	1 1/4 & 1 3/8	2 & 2 1/16	15	6	1.95	2.90	3.90	678-B

## SELECTED SET FOR TEXTILE MACHINERY

WITH OPENINGS FOR EVERY BOLT SIZE FROM 3/16 IN. TO 7/8 IN.

671-A	3/16 & 1/4	13/32 & 1/2	4 1/2	1 1/7	\$0.17	\$0.25	\$0.38	671-A
672-B	5/16 & 3/8	19/32 & 11/16	5 3/4	1 1/4	.21	.31	.46	672-B
674-A	7/16 & 1/2	25/32 & 7/8	8 3/4	2 3/8	.36	.53	.78	674-A
675-B	9/16 & 5/8	31/32 & 1 1/16	9 1/2	1	.50	.72	1.05	675-B
676-B	3/4 & 7/8	1 1/4 & 1 1/16	11	1 3/4	.68	.96	1.40	676-B

List Price of set, in cardboard box . . . .

\$1.92

\$2.77

\$4.07

See page 133 for wrenches fitting S. A. E. Standard Nuts and Cap Screws.



## OFF-SET ANGLE WRENCHES

22½° ANGLE, DOUBLE HEAD

For Hexagon Head Cap Screws



In stock as listed, with Openings for U. S. Standard Hexagon Head Cap Screws. For Special Milling see page 83.

No.	For Hexagon Head Cap Screws Diameter Screws Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
671-D	3/16 & 1/4	3/8 & 7/16	4 1/2	1 1/7	\$0.17	\$0.25	\$0.38	671-D
671-E	1/4 & 5/16	7/16 & 1/2	4 1/2	1 1/7	.17	.25	.38	671-E
672-D	5/16 & 3/8	1/2 & 9/16	5 3/4	1 1/4	.21	.31	.46	672-D
672-E	3/8 & 7/16	9/16 & 5/8	5 3/4	1 1/4	.21	.31	.46	672-E
673-D	7/16 & 1/2	5/8 & 3/4	7	1 1/2	.27	.40	.60	673-D
673-E	7/16 & 9/16	5/8 & 13/16	7	1 1/2	.27	.40	.60	673-E
674-D	1/2 & 5/8	3/4 & 7/8	8 1/4	2 3/8	.36	.53	.78	674-D
674-E	9/16 & 5/8	13/16 & 7/8	8 1/4	2 3/8	.36	.53	.78	674-E
675-D	5/8 & 3/4	7/8 & 1	9 1/2	1	.50	.72	1.05	675-D
675-E	3/4 & 7/8	1 & 1 1/8	9 1/2	1	.50	.72	1.05	675-E
676-D	7/8 & 1	1 1/8 & 1 1/4	11	1 3/4	.68	.96	1.40	676-D

For carefully selected Wrench Sets see pages 120-130.

See page 133 for wrenches fitting S. A. E. Standard Nuts and Cap Screws.



## THIN WRENCHES

For Check, Jam or Lock Nuts

15° ANGLE, SINGLE HEAD



In stock as listed, with Openings for U. S. Standard Finished Nuts. For Stock Whitworth and Metric Wrenches see page 113. For special milling see page 83.

No.	For U. S. Standard Nut Size Bolt Inches	Opening Milled Inches	Extreme Length Inches	Thickness Head Inches	Weight Each Pounds	Price Each			No.
						Un-finished	Semi-finished	Fin-ished	
600	$\frac{3}{16}$	$\frac{13}{32}$	$3\frac{3}{4}$	$\frac{5}{32}$	$\frac{1}{16}$	\$0.10	\$0.15	\$0.25	600
601	$\frac{1}{4}$	$\frac{1}{2}$	4	$\frac{5}{32}$	$\frac{1}{12}$	.12	.18	.28	601
602	$\frac{5}{16}$	$\frac{19}{32}$	$4\frac{1}{2}$	$\frac{11}{64}$	$\frac{1}{8}$	.15	.22	.32	602
603	$\frac{3}{8}$	$\frac{11}{16}$	$5\frac{1}{4}$	$\frac{3}{16}$	$\frac{1}{6}$	.18	.26	.38	603
604	$\frac{7}{16}$	$\frac{25}{32}$	6	$\frac{7}{32}$	$\frac{1}{4}$	.22	.32	.45	604
605	$\frac{1}{2}$	$\frac{7}{8}$	$6\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{3}$	.26	.38	.54	605
606	$\frac{9}{16}$	$\frac{31}{32}$	$7\frac{1}{2}$	$\frac{9}{32}$	$\frac{1}{2}$	.31	.45	.64	606
607	$\frac{5}{8}$	$1\frac{1}{16}$	$8\frac{1}{2}$	$\frac{5}{16}$	$\frac{3}{5}$	.38	.54	.76	607
608	$\frac{3}{4}$	$1\frac{1}{4}$	10	$\frac{9}{8}$	1	.48	.68	.94	608
609	$\frac{7}{8}$	$1\frac{1}{16}$	$11\frac{1}{2}$	$\frac{7}{16}$	$1\frac{1}{2}$	.68	.92	1.25	609
610	1	$1\frac{1}{8}$	13	$\frac{1}{2}$	$2\frac{1}{2}$	1.00	1.30	1.70	610





## THIN WRENCHES

For Check, Jam or Lock Nuts

15° ANGLE, DOUBLE HEAD



In stock as listed, with Openings for U. S. Standard Finished Nuts.  
For stock Whitworth and Metric Wrenches see page 113.  
For Special Milling see page 83.

No.	For U. S. Standard Nuts Size Bolts Inches	Openings Milled Inches	Ex- treme Length Inches	Thick- ness Heads Inches	Weight Each Pounds	Price Each			No.
						Un- finished	Semi- finished	Fin- ished	
623	$\frac{3}{16}$ & $\frac{1}{4}$	$1\frac{13}{32}$ & $\frac{1}{2}$	$4\frac{3}{8}$	$\frac{5}{32}$	$\frac{1}{8}$	\$0.17	\$0.25	\$0.38	623
623-A	$\frac{3}{16}$ & $\frac{5}{16}$	$1\frac{13}{32}$ & $1\frac{19}{32}$	$4\frac{3}{8}$	$\frac{5}{32}$	$\frac{1}{8}$	.17	.25	.38	623-A
623-B	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{1}{2}$ & $1\frac{19}{32}$	$4\frac{3}{8}$	$\frac{5}{32}$	$\frac{1}{8}$	.17	.25	.38	623-B
626	$\frac{7}{16}$ & $\frac{3}{8}$	$\frac{1}{2}$ & $1\frac{11}{16}$	$5\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{4}$	.22	.32	.48	626
626-A	$\frac{5}{16}$ & $\frac{3}{8}$	$1\frac{19}{32}$ & $1\frac{11}{16}$	$5\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{4}$	.22	.32	.48	626-A
626-B	$\frac{5}{16}$ & $\frac{7}{16}$	$1\frac{19}{32}$ & $2\frac{5}{32}$	$5\frac{1}{2}$	$\frac{3}{16}$	$\frac{1}{4}$	.22	.32	.48	626-B
629	$\frac{3}{8}$ & $\frac{7}{16}$	$1\frac{11}{16}$ & $2\frac{5}{32}$	$6\frac{1}{2}$	$\frac{7}{32}$	$\frac{1}{2}$	.28	.40	.60	629
629-A	$\frac{3}{8}$ & $\frac{1}{2}$	$1\frac{11}{16}$ & $\frac{7}{8}$	$6\frac{1}{2}$	$\frac{7}{32}$	$\frac{1}{2}$	.28	.40	.60	629-A
629-B	$\frac{7}{16}$ & $\frac{1}{2}$	$2\frac{5}{32}$ & $\frac{7}{8}$	$6\frac{1}{2}$	$\frac{7}{32}$	$\frac{1}{2}$	.28	.40	.60	629-B
632	$\frac{7}{16}$ & $\frac{9}{16}$	$2\frac{5}{32}$ & $3\frac{1}{32}$	8	$\frac{9}{32}$	$\frac{5}{8}$	.40	.56	.80	632
632-A	$\frac{1}{2}$ & $\frac{9}{16}$	$\frac{7}{8}$ & $3\frac{1}{32}$	8	$\frac{9}{32}$	$\frac{5}{8}$	.40	.56	.80	632-A
632-B	$\frac{1}{2}$ & $\frac{5}{8}$	$\frac{7}{8}$ & $3\frac{1}{32}$	8	$\frac{9}{32}$	$\frac{5}{8}$	.40	.56	.80	632-B
635	$\frac{9}{16}$ & $\frac{5}{8}$	$3\frac{1}{32}$ & $1\frac{11}{16}$	10	$1\frac{11}{32}$	1	.60	.84	1.15	635
635-A	$\frac{9}{16}$ & $\frac{3}{4}$	$3\frac{1}{32}$ & $1\frac{1}{4}$	10	$1\frac{11}{32}$	1	.60	.84	1.15	635-A
635-B	$\frac{5}{8}$ & $\frac{3}{4}$	$1\frac{11}{16}$ & $1\frac{1}{4}$	10	$1\frac{11}{32}$	1	.60	.84	1.15	635-B
638	$\frac{5}{8}$ & $\frac{7}{8}$	$1\frac{11}{16}$ & $1\frac{1}{2}$	12	$1\frac{13}{32}$	2	1.00	1.30	1.75	638
638-A	$\frac{3}{4}$ & $\frac{7}{8}$	$1\frac{1}{4}$ & $1\frac{1}{2}$	12	$1\frac{13}{32}$	2	1.00	1.30	1.75	638-A
638-B	$\frac{3}{4}$ & 1	$1\frac{1}{4}$ & $1\frac{1}{2}$	12	$1\frac{13}{32}$	2	1.00	1.30	1.75	638-B

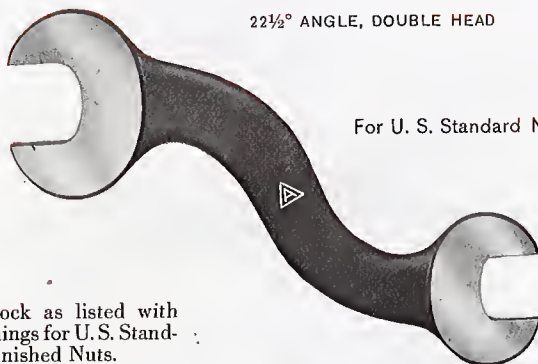
For carefully selected Wrench Sets see pages 120-130.

See page 132 for Wrenches fitting S. A. E. Standard Nuts and Cap Screws



## HEAVY "S" WRENCHES

22½° ANGLE, DOUBLE HEAD



For U. S. Standard Nuts

In stock as listed with  
Openings for U. S. Stand-  
ard finished Nuts.

No.	For U. S. Standard Nuts Size Bolts Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
661-A	1/8 & 3/16	5/16 & 13/32	4	1/4	\$0.15	\$0.22	\$0.32	661-A
661-B	1/8 & 1/4	5/16 & 1/2	4	1/4	.15	.22	.32	661-B
661-C	3/16 & 1/4	13/32 & 1/2	4	1/4	.15	.22	.32	661-C
662-A	3/16 & 5/16	13/32 & 19/32	5	1/4	.20	.29	.42	662-A
662-B	1/4 & 5/16	1/2 & 19/32	5	1/4	.20	.29	.42	662-B
662-C	1/4 & 3/8	1/2 & 11/16	5	1/4	.20	.29	.42	662-C
663-A	5/16 & 3/8	19/32 & 11/16	6 1/4	1/2	.27	.39	.56	663-A
663-B	5/16 & 7/16	19/32 & 25/32	6 1/4	1/2	.27	.39	.56	663-B
663-C	3/8 & 7/16	11/16 & 25/32	6 1/4	1/2	.27	.39	.56	663-C
664-A	3/8 & 1/2	11/16 & 7/8	7 1/2	7/8	.37	.53	.75	664-A
664-B	7/16 & 1/2	25/32 & 7/8	7 1/2	7/8	.37	.53	.75	664-B
664-C	7/16 & 9/16	25/32 & 31/32	7 1/2	7/8	.37	.53	.75	664-C
665-A	1/2 & 9/16	7/8 & 31/32	9	1 3/8	.50	.72	1.00	665-A
665-B	1/2 & 5/8	7/8 & 1 1/16	9	1 3/8	.50	.72	1.00	665-B
665-C	9/16 & 5/8	31/32 & 1 1/16	9	1 3/8	.50	.72	1.00	665-C
666-A	9/16 & 3/4	31/32 & 1 1/4	10 1/2	2	.74	1.00	1.35	666-A
666-B	5/8 & 3/4	1 1/16 & 1 1/4	10 1/2	2	.74	1.00	1.35	666-B
666-C	5/8 & 7/8	1 1/16 & 1 1/2	10 1/2	2	.74	1.00	1.35	666-C
667-A	3/4 & 7/8	1 1/4 & 1 1/2	12	3 1/2	1.10	1.45	1.90	667-A
667-B	3/4 & 1	1 1/4 & 1 5/8	12	3 1/2	1.10	1.45	1.90	667-B
667-C	7/8 & 1	1 1/16 & 1 5/8	12	3 1/2	1.10	1.45	1.90	667-C
668-A	7/8 & 1 1/8	1 7/16 & 1 13/16	14	5 1/2	1.90	2.50	3.20	668-A
668-B	1 & 1 1/8	1 5/8 & 1 13/16	14	5 1/2	1.90	2.50	3.20	668-B
668-C	1 & 1 1/4	1 5/8 & 2	14	5 1/2	1.90	2.50	3.20	668-C

For stock Whitworth and Metric Wrenches see page 113. For Special Milling see page 83.



ARMSTRONG BROS.

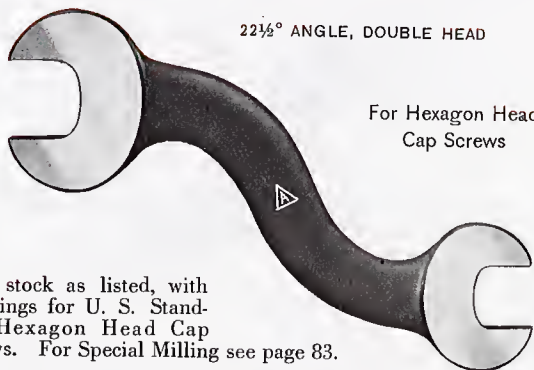


TOOL CO., CHICAGO



## HEAVY "S" WRENCHES

22½° ANGLE, DOUBLE HEAD

For Hexagon Head  
Cap Screws

In stock as listed, with  
Openings for U. S. Stand-  
ard Hexagon Head Cap  
Screws. For Special Milling see page 83.

No.	For Hex. Hd. Cap Screws Diam. Screws Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
661-D	1/8 & 3/16	5/16 & 3/8	4	1/6	\$0.15	\$0.22	\$0.32	661-D
661-E	1/8 & 1/4	5/16 & 7/16	4	1/6	.15	.22	.32	661-E
661-F	3/16 & 1/4	3/8 & 7/16	4	1/6	.15	.22	.32	661-F
661-G	3/16 & 5/16	3/8 & 1/2	4	1/6	.15	.22	.32	661-G
662-D	1/4 & 5/16	7/16 & 1/2	5	1/4	.20	.29	.42	662-D
662-E	1/4 & 3/8	7/16 & 9/16	5	1/4	.20	.29	.42	662-E
662-F	5/16 & 3/8	1/2 & 9/16	5	1/4	.20	.29	.42	662-F
662-G	5/16 & 7/16	1/2 & 5/8	5	1/4	.20	.29	.42	662-G
663-D	3/8 & 7/16	9/16 & 5/8	6 1/4	1 1/2	.27	.39	.56	663-D
663-E	3/8 & 1/2	9/16 & 3/4	6 1/4	1 1/2	.27	.39	.56	663-E
663-F	7/16 & 1/2	5/8 & 3/4	6 1/4	1 1/2	.27	.39	.56	663-F
663-G	7/16 & 9/16	5/8 & 13/16	6 1/4	1 1/2	.27	.39	.56	663-G
664-D	1/2 & 9/16	3/4 & 13/16	7 1/2	7/8	.37	.53	.75	664-D
664-E	1/2 & 5/8	3/4 & 7/8	7 1/2	7/8	.37	.53	.75	664-E
664-F	9/16 & 5/8	13/16 & 7/8	7 1/2	7/8	.37	.53	.75	664-F
665-D	9/16 & 3/4	13/16 & 1	9	1 3/8	.50	.72	1.00	665-D
665-E	5/8 & 3/4	7/8 & 1	9	1 3/8	.50	.72	1.00	665-E
665-F	5/8 & 7/8	7/8 & 1 1/8	9	1 3/8	.50	.72	1.00	665-F
665-G	3/4 & 7/8	1 & 1 1/8	9	1 3/8	.50	.72	1.00	665-G
666-D	3/4 & 1	1 & 1 1/4	10 1/2	2	.74	1.00	1.35	666-D
666-E	7/8 & 1	1 1/8 & 1 1/4	10 1/2	2	.74	1.00	1.35	666-E
666-F	7/8 & 1 1/8	1 1/8 & 1 3/8	10 1/2	2	.74	1.00	1.35	666-F
667-D	1 & 1 1/8	1 1/4 & 1 3/8	12	3 1/2	1.10	1.45	1.90	667-D
667-E	1 & 1 1/4	1 1/4 & 1 1/2	12	3 1/2	1.10	1.45	1.90	667-E
667-F	1 1/8 & 1 1/4	1 3/8 & 1 1/2	12	3 1/2	1.10	1.45	1.90	667-F

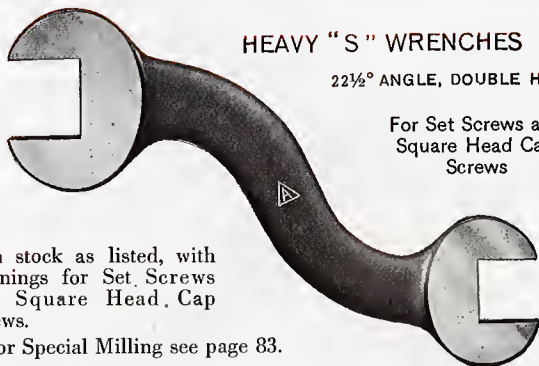
For carefully selected Wrench Sets see pages 120-130.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## HEAVY "S" WRENCHES

22½° ANGLE, DOUBLE HEAD

For Set Screws and  
Square Head Cap  
ScrewsIn stock as listed, with  
Openings for Set Screws  
and Square Head Cap  
Screws.

For Special Milling see page 83.

No.	For Set Screws Size Inches	For Sq. Hd. Cap Screws Diameter Screws	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
						Un- fin- ished	Semi- fin- ished	Fin- ished	
661-H	1/4 & 5/16		1/4 & 5/16	4	1/6	\$0.15	\$0.22	\$0.32	661-H
661-J	1/4 & 3/8	1/4	1/4 & 3/8	4	1/6	.15	.22	.32	661-J
661-K	5/16 & 3/8	1/4	5/16 & 3/8	4	1/6	.15	.22	.32	661-K
661-L	5/16 & 7/16	5/16	5/16 & 7/16	4	1/6	.15	.22	.32	661-L
662-H	3/8 & 7/16	1/4 & 5/16	3/8 & 7/16	5	1/4	.20	.29	.42	662-H
662-J	3/8 & 1/2	1/4 & 3/8	3/8 & 1/2	5	1/4	.20	.29	.42	662-J
662-K	7/16 & 1/2	5/16 & 3/8	7/16 & 1/2	5	1/4	.20	.29	.42	662-K
662-L	7/16 & 9/16	5/16 & 7/16	7/16 & 9/16	5	1/4	.20	.29	.42	662-L
663-H	1/2 & 9/16	3/8 & 7/16	1/2 & 9/16	6 1/4	1 1/2	.27	.39	.56	663-H
663-J	1/2 & 5/8	3/8 & 1/2	1/2 & 5/8	6 1/4	1 1/2	.27	.39	.56	663-J
663-K	9/16 & 5/8	7/16 & 1/2	9/16 & 5/8	6 1/4	1 1/2	.27	.39	.56	663-K
663-M	9/16	7/16 & 9/16	9/16 & 1 1/16	6 1/4	1 1/2	.27	.39	.56	663-M
664-H	9/16 & 3/4	7/16 & 5/8	9/16 & 3/4	7 1/2	3/8	.37	.53	.75	664-H
664-M	5/8	1/2 & 9/16	5/8 & 1 1/16	7 1/2	3/8	.37	.53	.75	664-M
664-J	5/8 & 3/4	1/2 & 5/8	5/8 & 3/4	7 1/2	3/8	.37	.53	.75	664-J
664-K	5/8 & 7/8	9/16 & 3/4	5/8 & 7/8	7 1/2	3/8	.37	.53	.75	664-K
664-P		3/4	1 1/16 & 3/4	7 1/2	3/8	.37	.53	.75	664-P
664-R		7/8	1 1/16 & 7/8	7 1/2	3/8	.37	.53	.75	664-R
665-H	3/4 & 7/8	5/8 & 3/4	3/4 & 7/8	9	1 1/4	.50	.72	1.00	665-H
665-J	3/4 & 1	5/8	3/4 & 1	9	1 1/4	.50	.72	1.00	665-J
665-K	7/8 & 1	3/4	7/8 & 1	9	1 1/4	.50	.72	1.00	665-K
666-M	3/4 & 1 1/8	5/8 & 3/8	3/4 & 1 1/8	10 1/2	2	.74	1.00	1.35	666-M
666-H	7/8 & 1 1/8	3/4 & 7/8	7/8 & 1 1/8	10 1/2	2	.74	1.00	1.35	666-H
666-R	7/8 & 1 1/4	3/4 & 1	7/8 & 1 1/4	11 1/2	2	.74	1.00	1.35	666-R
666-J	1 & 1 1/8		1 & 1 1/8	10 1/2	2	.74	1.00	1.35	666-J
666-K	1 & 1 1/4	1	1 & 1 1/4	10 1/2	2	.74	1.00	1.35	666-K
667-H	1 1/8 & 1 1/4	3/8 & 1	1 1/8 & 1 1/4	12	3 1/2	1.10	1.45	1.90	667-H
667-M	1 1/8 & 1 3/8	7/8 & 1 1/8	1 1/8 & 1 3/8	12	3 1/2	1.10	1.45	1.90	667-M
667-R	1 1/4 & 1 3/8	1 & 1 1/8	1 1/4 & 1 3/8	12	3 1/2	1.10	1.45	1.90	667-R
668-M	1 1/4 & 1 1/2	1 & 1 1/4	1 1/4 & 1 1/2	14	5	1.90	2.50	3.20	668-M
668-R	1 3/8 & 1 1/2	1 1/8 & 1 1/4	1 3/8 & 1 1/2	14	5	1.90	2.50	3.20	668-R



ARMSTRONG BROS.



TOOL CO., CHICAGO



## LIGHT "S" WRENCHES

EXTRA LONG—FOR GENERAL USE  
22½° ANGLE, DOUBLE HEADFor Carriage Makers and  
Automobile Builders or any  
service in which a long,  
light S wrench is required.In stock as listed. For  
Special Milling see page 83.  
For stock Whitworth and  
Metric Wrenches see page  
113.

No.	For U. S. Std. Nut Size Bolt Inches	For Hex. Hd. Cap Screws Dia. Screws Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
						Un- fin- ished	Semi- fin- ished	Fin- ished	
475-B		3/16 & 1/4	3/8 & 7/16	6 1/4	1/6	\$0.18	\$0.27	\$0.38	475-B
475-A	1/4	3/16 & 5/16	3/8 & 1/2	6 1/4	1/6	.18	.27	.38	475-A
475	3/16 & 1/4	5/16	13/32 & 1/2	6 1/4	1/6	.18	.27	.38	475
477-A	1/4	1/4 & 5/16	7/16 & 1/2	7 1/8	1/4	.23	.34	.47	477-A
477-B	1/4 & 5/16	5/16 & 3/8	1/2 & 9/16	7 1/8	1/4	.23	.34	.47	477-B
477-C	1/4	5/16	1/2 & 19/32	7 1/8	1/4	.23	.34	.47	477-C
477	1/4	5/16 & 7/16	1/2 & 5/8	7 1/8	1/4	.23	.34	.47	477
479-A	3/8	3/8 & 7/16	9/16 & 11/16	8 1/4	1/2	.29	.43	.58	479-A
479-B	5/16 & 3/8	3/8 & 7/16	9/16 & 5/8	8 1/4	1/2	.29	.43	.58	479-B
479-C	5/16	7/16	19/32 & 11/16	8 1/4	1/2	.29	.43	.58	479-C
479	3/8 & 7/16		5/8 & 11/16	8 1/4	1/2	.29	.43	.58	479
481-C	3/8		11/16 & 25/32	9 1/4	3/4	.38	.55	.72	481-C
481	3/8		11/16 & 27/32	9 1/4	3/4	.38	.55	.72	481
481-B		1/2 & 9/16	8 1/4 & 13/16	9 1/4	3/4	.38	.55	.72	481-B
481-A	1/2	1/2 & 5/8	3/4 & 7/8	9 1/4	3/4	.38	.55	.72	481-A
483-C	7/16 & 1/2		25/32 & 7/8	10 3/8	1	.50	.70	.90	483-C
483			27/32 & 15/16	10 3/8	1	.50	.70	.90	483
483-B	1/2	5/8 & 3/4	7/8 & 1	10 3/8	1	.50	.70	.90	483-B
483-A		5/8 & 3/4	19/16 & 1	10 3/8	1	.50	.70	.90	483-A
485-D	1/2 & 5/8	5/8	7/8 & 1 1/16	12	2	.70	1.00	1.30	485-D
485		3/4 & 7/8	1 & 1 1/8	12	2	.70	1.00	1.30	485
485-A	3/4	3/4 & 1	1 & 1 1/4	12	2	.70	1.00	1.30	485-A
485-C	5/8 & 3/4	1	1 1/16 & 1 1/4	12	2	.70	1.00	1.30	485-C
485-B	3/4	7/8 & 1	1 1/8 & 1 1/4	12	2	.70	1.00	1.30	485-B

For carefully selected Wrench Sets see pages 120-130

See page 134 for wrenches fitting S. A. E. Standard Nuts and Cap Screws.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## CAR WRENCHES

22½° ANGLE, DOUBLE HEAD

Long Leverage



In stock as listed, with Openings for U. S. Standard Rough Nuts.

Unfinished Car Wrenches are broached only. Semi-finished are broached and case-hardened but heads are not ground.

No.	For U. S. Standard Nuts Size Bolts Inches	Openings Inches	Extreme Length Inches	Weight Each Pounds	Price Each		No.
					Un- finished	Semi- finished	
367	⅜ & ½	2⅜ <sub>32</sub> & 2⅞ <sub>32</sub>	12	1½	\$0.55	\$0.75	367
370	½ & ⅝	1⅝ <sub>16</sub> & 1⅞	19	3	.95	1.25	370
371	½ & ¾	1⅝ <sub>16</sub> & 1⅞ <sub>16</sub>	19	3	1.15	1.55	371
372	½ & ⅞	1⅝ <sub>16</sub> & 1½	20	3½	1.15	1.55	372
373	⅝ & ¾	1⅞ & 1⅝ <sub>16</sub>	20	3½	1.15	1.55	373
374	⅝ & ⅞	1⅞ & 1½	21	4	1.35	1.85	374
375	⅝ & 1	1⅞ & 1⅞ <sub>16</sub>	21	4	1.35	1.85	375
376	¾ & ⅞	1⅞ <sub>16</sub> & 1½	21	4	1.35	1.85	376
377	¾ & 1	1⅞ <sub>16</sub> & 1⅞ <sub>16</sub>	22	5	1.65	2.25	377
378	¾ & 1⅞	1⅞ <sub>16</sub> & 1⅞	22	5	1.65	2.25	378
379	⅞ & 1	1½ & 1⅞ <sub>16</sub>	22	5	1.65	2.25	379
380	⅞ & 1⅞	1½ & 1⅞	23	5¾	1.95	2.65	380
381	⅞ & 1¼	1½ & 2¼ <sub>16</sub>	23	5¾	1.95	2.65	381
382	1 & 1⅞	1⅞ <sub>16</sub> & 1⅞	23	5¾	1.95	2.65	382
383	1 & 1¼	1⅞ <sub>16</sub> & 2¼ <sub>16</sub>	24	6¾	2.25	3.15	383
385	1⅞ & 1¼	1⅞ & 2¼ <sub>16</sub>	24	6¾	2.25	3.15	385
387	1⅞ & 1½	1⅞ & 2¼ <sub>16</sub>	25	9	3.40	4.50	387
389	1¼ & 1½	2¼ <sub>16</sub> & 2¼ <sub>16</sub>	25	9	3.40	4.50	389



## MACHINE WRENCHES

Extra Heavy for Planers, Milling Machines, Lathes  
Drill Presses, Etc.



In stock as listed, with Openings for U. S. Standard Finished  
Nuts and Set Screws. For Special Milling see page 83.

No.	Large Head for U. S. Standard Nut		Small Head for Set Screw Size Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
	Size Bolt Inches	Opening Milled Inches				Un- finished	Semi- finished	Fin- ished	
395-A	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{3}{8}$	$6\frac{1}{2}$	$\frac{2}{3}$	\$0.40	\$0.58	\$0.80	395-A
395-B	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{7}{16}$	$6\frac{1}{2}$	$\frac{2}{3}$	.40	.58	.80	395-B
395-C	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{1}{2}$	$6\frac{1}{2}$	$\frac{2}{3}$	.40	.58	.80	395-C
395-D	$\frac{7}{16}$	$\frac{25}{32}$	$\frac{3}{8}$	$6\frac{1}{2}$	$\frac{2}{3}$	.40	.58	.80	395-D
395-E	$\frac{7}{16}$	$\frac{25}{32}$	$\frac{7}{16}$	$6\frac{1}{2}$	$\frac{2}{3}$	.40	.58	.80	395-E
395-F	$\frac{7}{16}$	$\frac{25}{32}$	$\frac{1}{2}$	$6\frac{1}{2}$	$\frac{2}{3}$	.40	.58	.80	395-F
396-A	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{7}{16}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-A
396-B	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{1}{2}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-B
396-C	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{9}{16}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-C
396-D	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{5}{8}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-D
396-E	$\frac{9}{16}$	$\frac{31}{32}$	$\frac{7}{16}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-E
396-F	$\frac{9}{16}$	$\frac{31}{32}$	$\frac{1}{2}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-F
396-G	$\frac{9}{16}$	$\frac{31}{32}$	$\frac{9}{16}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-G
396-H	$\frac{9}{16}$	$\frac{31}{32}$	$\frac{5}{8}$	$7\frac{1}{2}$	1	.50	.72	1.00	396-H
397-A	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{9}{16}$	$8\frac{1}{2}$	$1\frac{1}{8}$	.70	.96	1.30	397-A
397-B	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{5}{8}$	$8\frac{1}{2}$	$1\frac{1}{8}$	.70	.96	1.30	397-B
397-C	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$8\frac{1}{2}$	$1\frac{1}{8}$	.70	.96	1.30	397-C
398-A	$\frac{3}{4}$	$\frac{11}{4}$	$\frac{3}{4}$	10	$1\frac{3}{4}$	1.00	1.35	1.80	398-A
398-B	$\frac{3}{4}$	$\frac{11}{4}$	$\frac{7}{8}$	10	$1\frac{3}{4}$	1.00	1.35	1.80	398-B
398-C	$\frac{3}{4}$	$\frac{11}{4}$	1	10	$1\frac{3}{4}$	1.00	1.35	1.80	398-C
398-D	$\frac{7}{8}$	$\frac{17}{16}$	$\frac{3}{4}$	10	$1\frac{3}{4}$	1.00	1.35	1.80	398-D
398-E	$\frac{7}{8}$	$\frac{17}{16}$	$\frac{7}{8}$	10	$1\frac{3}{4}$	1.00	1.35	1.80	398-E
398-F	$\frac{7}{8}$	$\frac{17}{16}$	1	10	$1\frac{3}{4}$	1.00	1.35	1.80	398-F





## SET SCREW WRENCHES

22½° ANGLE, SINGLE HEAD



In stock as listed, with Openings for Standard Set Screws. For special milling see page 83. For Stock Metric Wrenches see page 113.

No.	For Set Screw Size Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
				Un- finished	Semi- finished	Fin- ished	
92	3/16	3	1/25	\$0.10	\$0.14	\$0.23	92
93	1/4	3 5/8	1/16	.12	.17	.27	93
94	5/16	4 1/2	1/10	.14	.21	.31	94
95	3/8	5 3/8	1/6	.17	.25	.37	95
96	7/16	6 1/4	1/8	.21	.31	.45	96
97	1/2	7	3/8	.26	.38	.54	97
98	9/16	7 1/2	1/2	.31	.46	.65	98
99	5/8	8	3/4	.38	.55	.80	99
100	3/4	9 1/4	1	.48	.68	.98	100
101	7/8	10 1/2	1 1/2	.60	.84	1.20	101
102	1	11 1/2	2	.80	1.10	1.48	102
103	1 1/8	12	2 1/2	1.10	1.40	1.80	103





## SET SCREW WRENCHES

22½° ANGLE, DOUBLE HEAD



In stock as listed, with Openings for Standard Set Screws.  
For Special Milling see page 83.

No.	For Set Screws Size Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
				Un- finished	Semi- finished	Fin- ished	
65	8/16 & 1/4	3 3/8	1 1/16	\$0.14	\$0.20	\$0.30	65
66	3/16 & 5/16	4	1/8	.16	.24	.35	66
67	1/4 & 5/16	4	1/8	.16	.24	.35	67
68	1/4 & 3/8	5	1/6	.19	.29	.42	68
69	5/16 & 3/8	5	1/6	.19	.29	.42	69
70	5/16 & 7/16	5 7/8	1/8	.24	.35	.52	70
71	3/8 & 7/16	5 7/8	1/8	.24	.35	.52	71
72	3/8 & 1/2	6 5/8	1/2	.30	.45	.66	72
73	7/16 & 1/2	6 5/8	1/2	.30	.45	.66	73
74	7/16 & 9/16	7 1/2	3/4	.36	.54	.80	74
75	1/2 & 9/16	7 1/2	3/4	.36	.54	.80	75
76	1/2 & 5/8	8 3/8	1	.44	.65	.96	76
77	9/16 & 5/8	8 3/8	1	.44	.65	.96	77
78	9/16 & 3/4	10	1 1/2	.56	.80	1.15	78
79	5/8 & 3/4	10	1 1/2	.56	.80	1.15	79
80	5/8 & 7/8	11 3/8	2	.72	1.00	1.40	80
81	3/4 & 7/8	11 3/8	2	.72	1.00	1.40	81
82	3/4 & 1	12 5/8	2 3/4	.98	1.30	1.75	82
83	7/8 & 1	12 5/8	2 3/4	.98	1.30	1.75	83
84	7/8 & 1 1/8	12 5/8	2 3/4	1.35	1.75	2.25	84



## DOUBLE HEAD TOOL POST WRENCHES

For Set Screws



In stock as listed, with Openings for Standard Set Screws. For Special Milling see page 83.

No.	Open End for Set Screws Size Inches	Closed End for Set Screws Size Inches	Ex- treme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
641	$\frac{7}{16}$	$\frac{7}{16}$	$5\frac{1}{2}$	$\frac{3}{8}$	\$0.40	\$0.56	\$0.80	641
641-A	$\frac{1}{2}$	$\frac{7}{16}$	$5\frac{1}{2}$	$\frac{3}{8}$	.40	.56	.80	641-A
642	$\frac{1}{2}$	$\frac{1}{2}$	6	$\frac{1}{2}$	.44	.62	.88	642
642-A	$\frac{9}{16}$	$\frac{1}{2}$	6	$\frac{1}{2}$	.44	.62	.88	642-A
642-B	$\frac{9}{16}$	$\frac{9}{16}$	6	$\frac{1}{2}$	.44	.62	.88	642-B
643	$\frac{5}{8}$	$\frac{5}{8}$	$6\frac{3}{4}$	$\frac{3}{4}$	.52	.72	1.00	643
643-A	$\frac{11}{16}$	$\frac{5}{8}$	$6\frac{3}{4}$	$\frac{3}{4}$	.52	.72	1.00	643-A
643-B	$\frac{11}{16}$	$\frac{11}{16}$	$6\frac{3}{4}$	$\frac{3}{4}$	.52	.72	1.00	643-B
644	$\frac{3}{4}$	$\frac{3}{4}$	$7\frac{1}{2}$	1	.60	.82	1.16	644



ARMSTRONG BROS.



TOOL CO., CHICAGO



## DOUBLE HEAD TOOL POST WRENCHES

For U. S. Standard Nuts and Set Screws



In stock as listed, with Openings for U. S. Standard Finished Nuts and Set Screws. For stock Whitworth Wrenches see page 113. For Special Milling see page 83.

No.	Open End for U. S. Standard Nut		Closed End for Set Screw Size Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
	Size Bolt Inches	Opening Milled Inches				Un- finished	Semi- finished	Fin- ished	
651	3/8	1 1/16	7/16	6 1/2	1/2	\$0.48	\$0.66	\$0.96	651
651-A	3/8	1 1/16	1/2	6 1/2	1/2	.48	.66	.96	651-A
651-B	3/8	1 1/16	9/16	6 1/2	1/2	.48	.66	.96	651-B
651-C	7/16	2 5/32	5/8	6 1/2	1/2	.48	.66	.96	651-C
652	1/2	7/8	1/2	7	3/4	.52	.72	1.04	652
652-A	1/2	7/8	9/16	7	3/4	.52	.72	1.04	652-A
652-B	1/2	7/8	5/8	7	3/4	.52	.72	1.04	652-B
653	5/8	1 1/16	5/8	8	1	.72	.97	1.34	653
653-A	5/8	1 1/16	3/4	8	1	.72	.97	1.34	653-A
654	3/4	1 1/4	3/4	9	1 1/2	.90	1.20	1.60	654
655	7/8	1 7/16	7/8	10	2 1/4	1.25	1.60	2.00	655
656	1	1 5/8	1	11	3 1/4	1.80	2.20	2.70	656



ARMSTRONG BROS.



TOOL CO., CHICAGO



## HEXAGON BOX WRENCHES

15° ANGLE, SINGLE HEAD



In stock as listed, with Broached Openings for U. S. Standard Finished Nuts. For Stock Whitworth Wrenches see page 113.

No.	For U. S. Standard Nut Size Bolt Inches	Short Diameter Opening Broached Inches	Ex- treme Length Inches	Outside Diameter of Head Inches	Weight Each Pounds	Price Each			No.
						Un-finished	Semi-finished	Fin-ished	
801	1/4	1/2	4	29/32	1/10	\$0.15	\$0.21	\$0.30	801
802	5/16	30/64	4 3/4	13/32	1/8	.18	.25	.35	802
803	3/8	45/64	5 1/2	1 1/4	1/4	.21	.29	.40	803
804	7/16	51/64	6 1/2	1 3/8	1/3	.25	.35	.47	804
805	1/2	57/64	7 1/4	1 1/2	3/8	.30	.42	.56	805
806	9/16	63/64	8	1 5/8	1/2	.36	.50	.66	806
807	5/8	15/64	9 1/2	1 3/4	4/5	.45	.62	.82	807
808	3/4	117/64	10 3/4	2 1/16	1 1/3	.58	.78	1.05	808
809	7/8	129/64	12	2 3/8	1 3/4	.78	1.04	1.40	809
810	1	121/32	13 1/2	2 5/8	2 1/2	1.05	1.40	1.85	810
811	1 1/8	127/32	15	2 7/8	3	1.40	1.85	2.40	811
812	1 1/4	2 1/32	16 1/2	3 1/4	4	1.85	2.40	3.05	812
813	1 3/8	2 7/32	18	3 1/2	5	2.35	3.00	3.80	813
814	1 1/2	2 13/32	20	3 3/4	7	3.00	3.75	4.75	814



ARMSTRONG BROS.



TOOL CO., CHICAGO



## SQUARE BOX WRENCHES

## SINGLE HEAD



In stock as listed with Openings for Standard Set Screws.

No.	For Set-Screw Size Inches	Extreme Length Inches	Outside Diameter of Head Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
108	$\frac{1}{4}$	$3\frac{3}{8}$	$\frac{5}{8}$	$\frac{1}{16}$	\$0.12	\$0.17	\$0.27	108
109	$\frac{5}{16}$	$3\frac{3}{4}$	$2\frac{3}{32}$	$\frac{1}{8}$	.14	.20	.31	109
110	$\frac{3}{8}$	$4\frac{1}{4}$	$2\frac{7}{32}$	$\frac{1}{6}$	.16	.24	.35	110
111	$\frac{7}{16}$	$4\frac{7}{8}$	$3\frac{1}{32}$	$\frac{1}{4}$	.19	.28	.40	111
112	$\frac{1}{2}$	$5\frac{1}{2}$	$1\frac{3}{32}$	$\frac{1}{3}$	.23	.34	.48	112
113	$\frac{9}{16}$	$6\frac{1}{4}$	$1\frac{1}{32}$	$\frac{1}{2}$	.28	.41	.58	113
114	$\frac{5}{8}$	7	$1\frac{11}{32}$	$\frac{5}{8}$	.35	.50	.70	114
115	$\frac{3}{4}$	8	$1\frac{9}{16}$	$\frac{3}{4}$	.44	.62	.85	115
116	$\frac{7}{8}$	9	$1\frac{3}{4}$	1	.60	.81	1.10	116
117	1	10	2	$1\frac{1}{2}$	.80	1.05	1.40	117
118	$1\frac{1}{8}$	11	$2\frac{1}{4}$	$1\frac{3}{8}$	1.00	1.35	1.85	118



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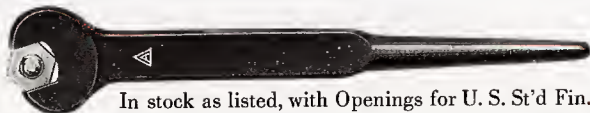


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## CONSTRUCTION WRENCHES

15° ANGLE

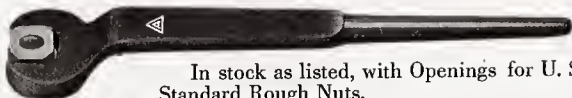


In stock as listed, with Openings for U. S. St'd Fin. Nuts.

No.	For U. S. St'd Nut Size Bolt Inches	Opening Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each		No.
					Un- finished	Semi- finished	
221	1/4	1/2	8	1/4	\$0.28	\$0.35	221
222	5/16	19/32	8	1/4	.28	.35	222
223	3/8	11/16	9 1/2	1/2	.35	.45	223
224	7/16	25/32	9 1/2	1/2	.35	.45	224
225	1/2	7/8	11 1/2	7/8	.45	.58	225
226	9/16	81/32	12 1/2	1	.45	.58	226
227	5/8	17/16	14	1 1/2	.62	.80	227
228	3/4	1 1/4	16	2 1/2	.86	1.10	228
229	7/8	1 7/16	17 1/2	3	1.18	1.50	229
230	1	1 5/8	19	4 1/4	1.60	2.10	230

## STRUCTURAL WRENCHES

STRAIGHT OPENING

In stock as listed, with Openings for U. S.  
Standard Rough Nuts.

No.	For U. S. St'd Nut Size Bolt Inches	Opening Inches	Extreme Length Inches	Handle Offset Inches	Weight Each Pounds	Price Each		No.
						Un- finished	Semi- finished	
901	1/4	17/32	8	18/16	1/4	\$0.33	\$0.40	901
902	5/16	5/8	8	18/16	1/4	.33	.40	902
903	3/8	23/32	9 1/2	15/16	1/2	.40	.52	903
904	7/16	13/16	9 1/2	15/16	1/2	.40	.52	904
905	1/2	29/32	11 1/2	1	1	.52	.70	905
906	9/16	1	12 3/4	1 1/16	1 1/4	.52	.70	906
907	5/8	17/16	14 1/8	1 3/8	2	.74	.98	907
908	3/4	1 13/16	16	1 1/4	2 1/2	1.02	1.34	908
909	7/8	1 1/2	17 1/2	1 5/16	3 1/2	1.40	1.80	909
910	1	1 11/16	19	1 3/8	5 1/2	1.90	2.50	910

NOTE—Semi-finished Structural and Construction Wrenches are case-hardened all over,  
but heads are not ground.



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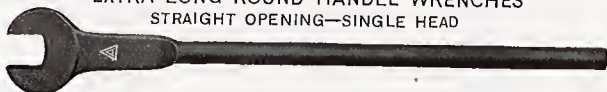


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## EXTRA LONG WRENCHES

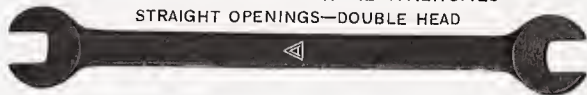
In stock as listed, with Openings for U. S. Standard Rough Nuts. Unfinished Wrenches are broached only. Semi-finished are broached and case-hardened but heads are not ground.

 EXTRA LONG ROUND HANDLE WRENCHES  
 STRAIGHT OPENING—SINGLE HEAD


No.	For U. S. St'd Nuts Size Bolts	Size Openings Inches	Extreme Length Inches	Weight Each Pounds	Price Each		No.
					Un-finished	Semi-finished	
292	1/2	15/16	19	3	\$1.00	\$1.50	292
293	5/8	1 1/8	22	4	1.10	1.60	293
294	3/4	1 5/16	22	4	1.10	1.60	294
296	7/8	1 1/2	24	5	1.50	2.10	296
297	1	1 11/16	24	5	1.50	2.10	297

 EXTRA LONG FLAT HANDLE WRENCHES  
 STRAIGHT OPENING—SINGLE HEAD


272	1/2	15/16	19	2 1/2	\$1.50	\$2.00	272
273	5/8	1 1/8	22	3 1/2	1.75	2.35	273
274	3/4	1 5/16	22	3 1/2	1.75	2.35	274
276	7/8	1 1/2	24	5	2.00	2.75	276
277	1	1 11/16	24	5	2.00	2.75	277

 EXTRA LONG FLAT HANDLE WRENCHES  
 STRAIGHT OPENINGS—DOUBLE HEAD


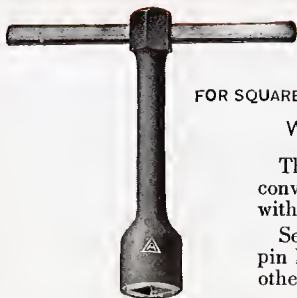
282	1/2 & 5/8	15/16 & 1 1/8	19	3 1/2	\$2.75	\$3.35	282
283	5/8 & 3/4	1 1/8 & 1 5/16	19	4 1/4	2.75	3.35	283
284	3/4 & 7/8	1 1/8 & 1 1/2	22	5	3.00	3.75	284
285	3/4 & 7/8	1 5/16 & 1 1/2	22	5	3.00	3.75	285
286	3/4 & 1	1 5/16 & 1 11/16	24	6	3.25	4.25	286
287	7/8 & 1	1 1/2 & 1 11/16	24	6	3.25	4.25	287



ARMSTRONG BROS.



TOOL CO., CHICAGO



## SINGLE HEAD SOCKET WRENCHES

FOR SQUARE NUTS, CAP SCREWS AND SET SCREWS

With or Without Pin Handle

The end of shank is made hexagon for convenience when using in combination with another wrench.

Semi-finished wrenches complete with pin handle will always be shipped unless otherwise specified. In stock as listed.

No.	Square Openings				Extreme Length, Inches	Diameter of Head, Inches	Weight Each, Pounds	Price Each						No.
	For U. S. St'd Nuts Size Bolt, Inches	For Cap Screws Diam. Screw, In.	For Set Screws Size Screw, Inches	Short Diameter Broached Opening				Unfinished		Semi-fin'd		Finished		
								Without Pin-Handle or Hole for Same	With Pin-Handle	Without Pin-Handle or Hole for Same	With Pin-Handle	Without Pin-Handle or Hole for Same	With Pin-Handle	
960-H			1/8	1/8	3 1/2	1 1/32	1/10	\$0.18	\$0.26	\$0.27	\$0.35	\$0.36	\$0.44	960-H
961-H			3/16	13/64	4	1 1/2	1/8	.20	.30	.30	.40	.40	.50	961-H
961-J			1/4	17/64	4	1 1/2	1/8	.20	.30	.30	.40	.40	.50	961-J
962-H			5/16	21/64	4 1/2	2 1/32	1/4	.22	.33	.33	.44	.44	.55	962-H
964-H		1/4	3/8	25/64	5 1/4	2 5/32	3/5	.26	.39	.39	.52	.52	.65	964-H
965-H		5/16	7/16	29/64	5 3/4	15/16	1/2	.29	.43	.44	.58	.58	.72	965-H
966-H	1/4	3/8	1/2	33/64	5 3/4	15/16	1/2	.32	.47	.48	.63	.64	.79	966-H
967-H		7/16	9/16	37/64	6 1/4	1 5/32	3/4	.36	.53	.54	.71	.72	.89	967-H
967-X	5/16			39/64	6 1/4	1 5/32	3/4	.36	.53	.54	.71	.72	.89	967-X
968-H		1/2	5/8	41/64	7	1 9/16	1 1/8	.40	.57	.60	.77	.80	.97	968-H
968-M	3/8	5/16		45/64	7	1 5/16	1 1/8	.40	.57	.60	.77	.80	.97	968-M
969-H		5/8	3/4	49/64	7	1 5/16	1 1/8	.46	.64	.69	.87	.92	1.10	969-H
970-X	7/16			51/64	7 3/4	1 1/2	1 1/2	.52	.72	.78	.98	1.04	1.24	970-X
971-H	1/2	3/4	7/8	57/64	8 1/4	1 11/16	2 1/8	.60	.80	.90	1.10	1.20	1.40	971-H
972-X	9/16			58/64	8 1/4	1 11/16	2	.70	.95	1.05	1.30	1.40	1.65	972-X
973-H		1		1 1/64	9	1 15/16	3 1/4	.80	1.10	1.20	1.50	1.60	1.90	973-H
974-X	5/8			1 5/64	9	1 15/16	3	.90	1.25	1.35	1.70	1.80	2.15	974-X
974-H		7/8	1 1/8	1 9/32	9	1 15/16	2 3/4	.90	1.25	1.35	1.70	1.80	2.15	974-H
976-H	3/4	1	1 1/4	1 1/32	9 3/4	2 1/2	4 1/4	1.15	1.55	1.72	2.12	2.30	2.70	976-H
977-M		1 1/8		1 13/32	10 1/2	2 1/2	5 1/4	1.30	1.75	1.95	2.40	2.60	3.05	977-M
977-X	7/8			1 15/32	10 1/2	2 1/2	5 1/8	1.30	1.75	1.95	2.40	2.60	3.05	977-X
977-O		1 1/4		1 17/32	10 1/2	2 1/2	5	1.30	1.75	1.95	2.40	2.60	3.05	977-O
978-M	1	1 3/8		1 21/32	11 1/4	3	7 3/4	1.60	2.05	2.40	2.85	3.20	3.65	978-M
979-X	1 1/8			1 27/32	11 1/4	3	7 1/2	2.10	2.60	3.15	3.65	4.20	4.70	979-X
980-X	1 1/4			2 1/32	12	3 5/16	10 1/2	2.80	3.45	4.20	4.85	5.60	6.25	980-X

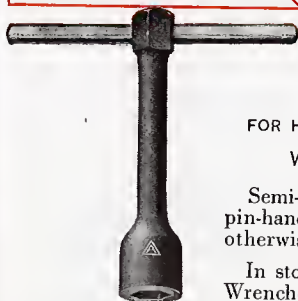




ARMSTRONG BROS.



TOOL CO., CHICAGO



## SINGLE HEAD SOCKET WRENCHES

FOR HEXAGON NUTS AND CAP SCREWS

With or Without Pin Handle

Semi-finished Wrenches complete with pin-handle will always be shipped unless otherwise specified.

In stock as listed. For Stock Whitworth Wrenches see page 113.

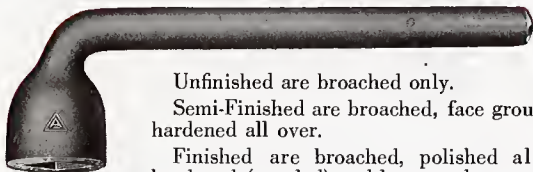
No.	Hexagon Openings			Extreme Length, Inches	Diameter of Head, Inches	Weight Each Pounds	Price Each						No.
	For U. S. St'd Nuts Size Bolt, Inches	For Cap Screws Diam. Screw, In.	Short Diameter Broached Opening				Unfinished		Semi-fin'd		Finished		
							Without Pin-Handle or Hole for Same	With Pin-Handle	Without Pin-Handle or Hole for Same	With Pin-Handle	Without Pin-Handle or Hole for Same	With Pin-Handle	
961-A	1/8		21/64	4	1/2	1/8	\$0.20	\$0.30	\$0.30	\$0.40	\$0.40	\$0.50	961-A
962-O		3/16	25/64	4 1/2	21/32	1/4	.22	.33	.33	.44	.44	.55	962-O
963-A	3/16		27/64	4 1/2	21/32	1/4	.24	.37	.36	.49	.48	.61	963-A
963-O		1/4	29/64	4 1/2	21/32	1/4	.24	.37	.36	.49	.48	.61	963-O
964-A	1/4	5/16	33/64	5 1/4	25/32	3/8	.26	.39	.39	.52	.52	.65	964-A
965-O		3/8	37/64	5 3/4	15/16	1/2	.29	.43	.44	.58	.58	.72	965-O
965-A	5/16		39/64	5 3/4	15/16	1/2	.29	.43	.44	.58	.58	.72	965-A
966-O		7/16	41/64	5 3/4	15/16	1/2	.32	.47	.48	.63	.64	.79	966-O
967-A	3/8		45/64	6 1/4	1 7/8	3/4	.36	.53	.54	.71	.72	.89	967-A
967-D		1/2	49/64	6 1/4	1 7/8	3/4	.36	.53	.54	.71	.72	.89	967-D
968-A	7/16		51/64	7	1 7/8	1 1/8	.40	.57	.60	.77	.80	.97	968-A
968-D		9/16	53/64	7	1 7/8	1 1/8	.40	.57	.60	.77	.80	.97	968-D
969-A	1/2	5/8	57/64	7	1 7/8	1 1/8	.46	.64	.69	.87	.92	1.10	969-A
970-A	9/16		63/64	7 3/4	1 7/8	1 1/2	.52	.72	.78	.98	1.04	1.24	970-A
970-O		3/4	1 1/64	7 3/4	1 7/8	1 1/2	.52	.72	.78	.98	1.04	1.24	970-O
971-A	5/8		1 1/64	8 1/4	1 7/8	2 1/8	.60	.80	.90	1.10	1.20	1.40	971-A
972-O		7/8	1 1/32	8 1/4	1 7/8	2	.70	.95	1.05	1.30	1.40	1.65	972-O
973-A	3/4	1	1 1/32	9	1 7/8	3 1/8	.80	1.10	1.20	1.50	1.60	1.90	973-A
974-O		1 1/8	1 1/32	9	1 7/8	2 7/8	.90	1.25	1.35	1.70	1.80	2.15	974-O
975-A	7/8		1 1/32	9 3/4	2 1/8	4 1/4	1.00	1.35	1.50	1.85	2.00	2.35	975-A
975-O		1 1/4	1 1/32	9 3/4	2 1/8	4	1.00	1.35	1.50	1.85	2.00	2.35	975-O
976-A	1		1 1/32	9 3/4	2 1/8	3 7/8	1.15	1.55	1.72	2.12	2.30	2.70	976-A
977-A	1 1/8		1 1/32	10 1/2	2 1/2	5	1.30	1.75	1.95	2.40	2.60	3.05	977-A
978-A	1 1/4		2 1/32	11 1/4	3	8 1/2	1.60	2.05	2.40	2.85	3.20	3.65	978-A
979-A	1 3/8		2 1/32	11 1/4	3	7 1/2	2.10	2.60	3.15	3.65	4.20	4.70	979-A
980-A	1 1/2		2 1/32	12	3 5/16	10	2.80	3.45	4.20	4.85	5.60	6.25	980-A

For Socket wrenches fitting S. A. E. Standard Nuts and Cap Screws see page 135.



## DROP FORGED SOCKET WRENCHES WITH OFF-SET HANDLE

For Square Nuts, Cap Screws  
and Set Screws



Unfinished are broached only.

Semi-Finished are broached, face ground and hardened all over.

Finished are broached, polished all over, hardened (mottled) and lacquered.

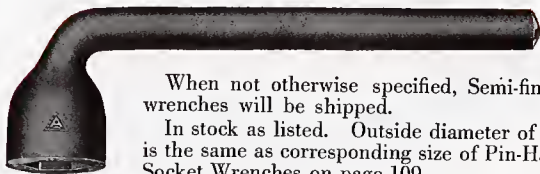
In stock as listed. Clearance of handle is same as Hexagon Socket Offset Wrenches, see page 111.

No.	Square Openings				Extreme Length Inches	Weight Each, Pounds	Price Each			No.
	For U. S. St'd Nuts Size Bolt, Inches	For Cap Screws Diam. Screw, In.	For Set Screws Size, Inches	Short Diameter Broached Opening Inches			Unfinished	Semi-finished	Finished	
861-H			$\frac{3}{16}$	$\frac{13}{64}$	$3\frac{3}{4}$	$\frac{1}{8}$	\$0.20	\$0.30	\$0.40	861-H
861-J			$\frac{1}{4}$	$\frac{17}{64}$	$3\frac{3}{4}$	$\frac{1}{8}$	.20	.30	.40	861-J
862-H			$\frac{5}{16}$	$\frac{21}{64}$	$4\frac{1}{2}$	$\frac{1}{4}$	.22	.33	.44	862-H
864-H		$\frac{1}{4}$	$\frac{3}{8}$	$\frac{25}{64}$	$5\frac{1}{2}$	$\frac{1}{8}$	.26	.39	.52	864-H
865-H		$\frac{5}{16}$	$\frac{7}{16}$	$\frac{29}{64}$	$6\frac{1}{2}$	$\frac{7}{16}$	.29	.44	.58	865-H
866-H	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{33}{64}$	$6\frac{1}{2}$	$\frac{7}{16}$	.32	.48	.64	866-H
867-H		$\frac{7}{16}$	$\frac{9}{16}$	$\frac{37}{64}$	$7\frac{1}{4}$	$\frac{5}{8}$	.36	.54	.72	867-H
867-X	$\frac{5}{16}$			$\frac{39}{64}$	$7\frac{1}{4}$	$\frac{5}{8}$	.36	.54	.72	867-X
868-H		$\frac{1}{2}$	$\frac{5}{8}$	$\frac{41}{64}$	8	1	.40	.60	.80	868-H
868-M	$\frac{3}{8}$	$\frac{9}{16}$		$\frac{45}{64}$	8	1	.40	.60	.80	868-M
869-H		$\frac{5}{8}$	$\frac{3}{4}$	$\frac{49}{64}$	8	1	.46	.69	.92	869-H
870-X	$\frac{7}{16}$			$\frac{51}{64}$	$8\frac{1}{2}$	$1\frac{1}{4}$	.52	.78	1.04	870-X
871-H	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{57}{64}$	$9\frac{1}{4}$	$1\frac{3}{4}$	.60	.90	1.20	871-H
872-X	$\frac{9}{16}$			$\frac{63}{64}$	$9\frac{1}{4}$	$1\frac{5}{8}$	.70	1.05	1.40	872-X
873-H		1		$\frac{11}{64}$	$10\frac{1}{2}$	$2\frac{1}{2}$	.80	1.20	1.60	873-H
874-X	$\frac{5}{8}$			$\frac{15}{64}$	$10\frac{1}{2}$	$2\frac{1}{2}$	.90	1.35	1.80	874-X
874-H		$\frac{7}{8}$	$1\frac{1}{8}$	$\frac{15}{32}$	$10\frac{1}{2}$	$2\frac{1}{2}$	.90	1.35	1.80	874-H
876-H	$\frac{3}{4}$	1	$1\frac{1}{4}$	$\frac{19}{32}$	12	$3\frac{3}{4}$	1.15	1.72	2.30	876-H



## DROP FORGED SOCKET WRENCHES WITH OFF-SET HANDLE

For Hexagon Nuts and Cap Screws



When not otherwise specified, Semi-finished wrenches will be shipped.

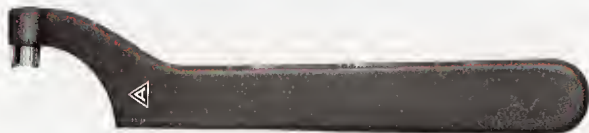
In stock as listed. Outside diameter of head is the same as corresponding size of Pin-Handle Socket Wrenches on page 109.

No.	Hexagon Openings			Extreme Length Inches	Clearance of Handle From Face of Wrench Inches	Weight Each, Pounds	Price Each			No.
	For U. S. Std Nuts Size Bolt, Inches	For Cap Screws Diam. Screw, In.	Short Diameter Broached Opening Inches				Unfinished	Semi-finished	Finished	
861-A	1/8		21/64	3 3/4	1 1/10	1/8	\$0.20	\$0.30	\$0.40	861-A
862-D			25/64	4 1/2	7/8	1 1/8	.22	.33	.44	862-D
863-A	3/16	3/16	27/64	4 1/2	7/8	1 1/8	.24	.36	.48	863-A
863-D		1/4	29/64	4 1/2	7/8	1 1/8	.24	.36	.48	863-D
864-A	1/4	5/16	33/64	5 1/2	1	1 1/4	.26	.39	.52	864-A
865-D		3/8	37/64	6 1/2	1 1/4	3/8	.29	.44	.58	865-D
865-A	5/16		39/64	6 1/2	1 1/4	7/10	.29	.44	.58	865-A
866-D		7/16	41/64	6 1/2	1 1/4	7/10	.32	.48	.64	866-D
867-A	3/8		45/64	7 1/4	1 1/2	5/8	.36	.54	.72	867-A
867-D		1/2	49/64	7 1/4	1 1/2	5/8	.36	.54	.72	867-D
868-A	7/16		51/64	8	1 11/16	7/8	.40	.60	.80	868-A
868-D		9/16	53/64	8	1 11/16	7/8	.40	.60	.80	868-D
869-A	1/2	5/8	57/64	8	1 11/16	7/8	.46	.69	.92	869-A
87D-A	9/16		63/64	8 1/2	1 13/16	1 1/4	.52	.78	1.04	87D-A
87D-D		3/4	1 1/64	8 1/2	1 13/16	1 1/4	.52	.78	1.04	87D-D
871-A	5/8		1 5/64	9 1/4	2	1 5/8	.60	.90	1.20	871-A
872-D		7/8	1 9/32	9 1/4	2	1 5/8	.70	1.05	1.40	872-D
873-A	3/4	1	1 13/32	10 1/2	2 1/2	2 1/8	.80	1.20	1.60	873-A
874-D		1 1/8	1 13/32	10 1/2	2 1/2	2 1/4	.90	1.35	1.80	874-D
875-A	7/8		1 17/32	12	2 3/4	3 1/2	1.00	1.50	2.00	875-A
875-D		1 1/4	1 17/32	12	2 3/4	3 1/2	1.00	1.50	2.00	875-D
876-A	1		1 21/32	12	2 3/4	3 1/8	1.15	1.72	2.30	876-A

For Offset Handle Socket Wrenches fitting S. A. E. Standard Nuts and Cap Screws see page 136.



## PIN SPANNERS



Unfinished are plain forgings, not milled or ground.

Semi-finished have pins milled, edges ground, and are case-hardened all over.

Finished have pins milled, are polished all over, case-hardened in colors and lacquered.

No.	For Circle Diameter Inches	Extreme Length Inches	Finished Diameter Pin Inches	Weight Each Pounds	Price Each			No.
					Un-finished	Semi-finished	Fin-ished	
452	1	4	$\frac{3}{16}$	$\frac{1}{12}$	\$0.18	\$0.27	\$0.36	452
453	$1\frac{1}{4}$	$4\frac{1}{2}$	$\frac{13}{64}$	$\frac{1}{16}$	.19	.29	.38	453
454	$1\frac{1}{2}$	5	$\frac{7}{32}$	$\frac{1}{8}$	.20	.30	.40	454
455	$1\frac{3}{4}$	$5\frac{1}{2}$	$\frac{15}{64}$	$\frac{1}{6}$	.21	.31	.42	455
456	2	6	$\frac{1}{4}$	$\frac{1}{5}$	.22	.33	.44	456
457	$2\frac{1}{4}$	$6\frac{1}{2}$	$\frac{17}{64}$	$\frac{1}{4}$	.23	.35	.46	457
458	$2\frac{1}{2}$	7	$\frac{9}{32}$	$\frac{1}{3}$	.24	.36	.48	458
459	$2\frac{3}{4}$	$7\frac{1}{2}$	$\frac{19}{64}$	$\frac{2}{5}$	.26	.39	.52	459
460	3	8	$\frac{5}{16}$	$\frac{1}{2}$	.28	.42	.56	460
461	$3\frac{1}{4}$	$8\frac{1}{2}$	$\frac{21}{64}$	$\frac{1}{2}$	.30	.45	.60	461
462	$3\frac{1}{2}$	9	$\frac{11}{32}$	$\frac{5}{8}$	.32	.48	.64	462
463	$3\frac{3}{4}$	$9\frac{1}{2}$	$\frac{23}{64}$	$\frac{3}{4}$	.34	.51	.68	463
464	4	10	$\frac{3}{8}$	$\frac{3}{4}$	.36	.54	.72	464
466	5	12	$\frac{7}{16}$	1	.48	.72	.96	466
468	6	14	$\frac{1}{2}$	$1\frac{3}{8}$	.65	.98	1.30	468



# METRIC AND WHITWORTH STANDARD WRENCHES

## STOCK SHAPES AND SIZES

The Wrenches listed beneath are carried in stock with Whitworth Standard Bolt and Metric Measure Milled Openings and can be furnished at regular prices. All Metric Wrenches are stamped M and Whitworth are stamped W.

When ordering be careful to specify "Whitworth" or "Metric" as may be required. U. S. Standard wrenches are always shipped when not otherwise specified in order.

For Wrench Sets with Whitworth and Metric Openings see pages 123-124.

Catalog Number and Page	Fitting Whitworth Nut Size Bolt Inches	Metric Size Op'ing m/m	Catalog Number and Page	Fitting Whitworth Nut Size Bolt Inches	Metric Size Op'ing m/m	Catalog Number and Page	Fitting Whitworth Nut Size Bolt Inches	Metric Size Op'ing m/m	Catalog Number and Page	Fitting Whitworth Nut Size Bolt Inches	Metric Size Op'ing m/m
Page 84-85			Page 86-87			Page 93			Page 100		
00	$\frac{1}{8}$	8	41	$\frac{3}{8}$ & 1	38-40	629-8	$\frac{3}{16}$ & $\frac{1}{2}$	22-25	97		12
0	$\frac{3}{16}$	10	42	$\frac{1}{2}$ & $1\frac{1}{4}$		632	$\frac{1}{4}$ & $\frac{9}{16}$		99		16
1	$\frac{1}{4}$	12	43	1 & $1\frac{1}{2}$	42-45	632-A	$\frac{1}{2}$ & $\frac{5}{8}$		100		18
2	$\frac{5}{16}$	14	44	1 & $1\frac{1}{4}$		632-B	$\frac{1}{2}$ & $\frac{5}{8}$				
3	$\frac{3}{8}$	16	45	$1\frac{1}{2}$ & $1\frac{1}{4}$		635	$\frac{5}{16}$ & $\frac{9}{8}$	28-30	Page 103	Op'n Cls'd end	
3		18	46	$1\frac{1}{2}$ & $1\frac{3}{8}$	50-55	635-A	$\frac{5}{16}$ & $\frac{3}{4}$		652-A	$\frac{1}{2}$ & $\frac{5}{8}$	
4	$\frac{7}{16}$	20	47	$1\frac{1}{4}$ & $1\frac{3}{8}$		635-B	$\frac{5}{8}$ & $\frac{3}{4}$		652-B	$\frac{1}{2}$ & $\frac{5}{8}$	
5	$\frac{1}{2}$	22	48	$1\frac{1}{4}$ & $1\frac{1}{2}$		638	$\frac{5}{8}$ & $\frac{3}{8}$		653	$\frac{5}{8}$ & $\frac{3}{4}$	
6	$\frac{5}{8}$	25	49	$1\frac{1}{2}$ & $1\frac{1}{2}$		638-A	$\frac{3}{4}$ & $\frac{7}{8}$		653-A	$\frac{5}{8}$ & $\frac{3}{4}$	
7	$\frac{5}{8}$	28	51	$1\frac{1}{2}$ & $1\frac{3}{4}$		638-B	$\frac{3}{4}$ & 1		654	$\frac{3}{4}$ & $\frac{3}{4}$	
8	$\frac{3}{4}$	30	52	$1\frac{1}{2}$ & $1\frac{3}{4}$							
8		32	53	$1\frac{3}{8}$ & $1\frac{3}{4}$		Page 94			Page 108		
9	$\frac{7}{8}$	35	55	$1\frac{3}{4}$ & 2		661-8	$\frac{3}{8}$ & $\frac{1}{4}$		223	$\frac{3}{8}$	
9		38	55½	$1\frac{3}{4}$ & 2		661-C	$\frac{3}{16}$ & $\frac{1}{4}$		225	$\frac{1}{2}$	
10	1	40	56	$1\frac{3}{4}$ & $2\frac{1}{4}$		662-8	$\frac{1}{4}$ & $\frac{5}{16}$		227	$\frac{5}{8}$	
10		42	57	2 & $2\frac{1}{4}$		662-C	$\frac{1}{4}$ & $\frac{3}{8}$		228	$\frac{3}{4}$	
11		45		2 & $2\frac{1}{4}$		663-8	$\frac{5}{16}$ & $\frac{7}{16}$		229	1	
12	$1\frac{1}{8}$	50	Page 90			663-C	$\frac{5}{8}$ & $\frac{7}{16}$		230		
13	$1\frac{1}{4}$		671-A	$\frac{3}{16}$ & $\frac{1}{4}$		664-A	$\frac{5}{8}$ & $\frac{1}{2}$				
14	$1\frac{1}{2}$		672-8	$\frac{5}{16}$ & $\frac{3}{8}$		664-B	$\frac{7}{8}$ & $\frac{1}{2}$				
15	$1\frac{3}{8}$		673-8	$\frac{3}{8}$ & $\frac{1}{2}$		664-C	$\frac{7}{16}$ & $\frac{9}{16}$				
16	$1\frac{1}{2}$		674-A	$\frac{7}{16}$ & $\frac{1}{2}$		665-8	$\frac{1}{2}$ & $\frac{5}{8}$				
16½	$1\frac{1}{8}$		675-B	$\frac{9}{16}$ & $\frac{5}{8}$		666-8	$\frac{1}{2}$ & $\frac{3}{4}$				
17	2		676-A	$\frac{5}{8}$ & $\frac{3}{4}$		667-A	$\frac{3}{4}$ & $\frac{7}{8}$				
18	$2\frac{1}{4}$					667-B	$\frac{3}{4}$ & 1				
19	$2\frac{1}{2}$					667-C	$\frac{3}{8}$ & 1				
20	3										
Page 86-87			Page 92			Page 95			Page 104		
21	$\frac{1}{8}$ & $\frac{3}{16}$	6-8	600	$\frac{3}{16}$		661		6-8	801	$\frac{1}{4}$	
22	$\frac{1}{8}$ & $\frac{1}{4}$		601	$\frac{1}{4}$	14	661		10-12	802	$\frac{5}{16}$	
23	$\frac{1}{8}$ & $\frac{1}{4}$	10-12	602	$\frac{5}{16}$		662		14-16	803	$\frac{3}{8}$	
24	$\frac{3}{16}$ & $\frac{5}{16}$		603	$\frac{3}{8}$	22	663		18-20	804	$\frac{7}{16}$	
25	$\frac{1}{4}$ & $\frac{5}{16}$	12-14	604	$\frac{7}{16}$	25	664		22-25	805	$\frac{1}{2}$	
26	$\frac{1}{4}$ & $\frac{3}{8}$		605	$\frac{1}{2}$	30	665		28-30	806	$\frac{5}{8}$	
27	$\frac{5}{16}$ & $\frac{3}{8}$	14-16	606	$\frac{9}{16}$	32	666		32-35	807	$\frac{3}{4}$	
28	$\frac{5}{16}$ & $\frac{7}{16}$	16-18	607	$\frac{5}{8}$		667		38-40	808	$\frac{7}{8}$	
29	$\frac{3}{8}$ & $\frac{7}{16}$	18-20	608	$\frac{3}{4}$		668		42-45	809		
30	$\frac{3}{8}$ & $\frac{1}{2}$		609	$\frac{7}{8}$		669					
31	$\frac{7}{16}$ & $\frac{1}{2}$	20-22	610	1		670					
32	$\frac{7}{16}$ & $\frac{9}{16}$		Page 93			671					
33	$\frac{1}{2}$ & $\frac{9}{16}$	22-25	623	$\frac{3}{16}$ & $\frac{1}{4}$	10-12	672					
34	$\frac{1}{2}$ & $\frac{5}{8}$	24-26	623-A	$\frac{3}{16}$ & $\frac{5}{16}$		673					
35	$\frac{5}{16}$ & $\frac{5}{8}$	25-28	623-B	$\frac{1}{4}$ & $\frac{5}{16}$		674					
36	$\frac{5}{16}$ & $\frac{3}{4}$		626	$\frac{1}{4}$ & $\frac{3}{8}$	14-16	675					
37	$\frac{5}{8}$ & $\frac{3}{4}$	28-30	626-A	$\frac{5}{16}$ & $\frac{3}{8}$		676					
38	$\frac{5}{8}$ & $\frac{1}{2}$	30-32	626-B	$\frac{5}{16}$ & $\frac{3}{16}$		677					
39	$\frac{3}{4}$ & $\frac{7}{8}$	32-35	629	$\frac{3}{8}$ & $\frac{7}{16}$	18-20	678					
40	$\frac{3}{4}$ & 1		629-A	$\frac{3}{8}$ & $\frac{1}{2}$		679					



## ARMSTRONG DEALERS' STOCK WRENCH DISPLAY BOARDS

**T**HESE boards are of convenient shape and size and present a handsome appearance; oak finish, with black lettered brass sign.

They are designed to aid the dealer in carrying in convenient, compact shape a stock of Armstrong Drop Forged Wrenches in the shapes and sizes most used, giving the greatest variety of openings, and fewest possible duplications with minimum of invested capital and displaying same to the best possible advantage.

The Boards are not sold, but are furnished to any Dealer desiring same shipped with stock orders No. 1, 2, 3, or 3½, listed on pages 115-119 and 137-139, upon condition that such Board will be used exclusively for the display of Armstrong Wrenches.



## ARMSTRONG DEALERS' WRENCH STOCK AND DISPLAY BOARD

### STOCK No. 1

For Machine Shop Supply Dealers

This is a well assorted stock of 240 wrenches, including six of each of the best selling sizes in the five most popular shapes with

All Openings for U. S. Std. Nuts  $\frac{1}{8}$  to  $\frac{7}{8}$  in.

" " " Hex. Hd. Cap Screws  $\frac{1}{8}$  to  $1\frac{1}{8}$  in.

" " " Sq. Hd. Cap Screws  $\frac{1}{4}$  to 1 in.

" " " Sq. Hd. Set Screws  $\frac{5}{16}$  to  $1\frac{1}{4}$  in.

and most openings for A. L. A. M. and S. A. E. nuts and cap screws from  $\frac{1}{4}$  to 1 in.

For complete details see pages 116-117.

Dimensions of Board . . . 84 in. x  $13\frac{1}{2}$  in.

Net Weight of Board . . . . 25 Pounds

" " " Wrenches . . . 183 "

Total Weight . . . . . 208 "

	Semi-finished	Finished
Price of No. 1 stock as described above and listed on pages 116-117	\$116.58	\$167.16

The Board is not sold but is furnished to Dealers under conditions stated on page 114.





ARMSTRONG BROS.



TOOL CO., CHICAGO



## DEALERS WRENCH STOCK No. 1

15° ANGLE WRENCHES  
SINGLE HEAD

No.	For U. S. Standard Nuts Size Bolt Inches	For Hexa. Head Cap Screws Diam. Screw In.	For Square Head Cap Screws Diam. Screw In.	For Set Screws Size Inches	For S.A.E. St'd Nuts and Cap Screws, Size In.	For A. L. A. M. St'd Nuts and Cap Screws, Size In.	Openings Milled Inches	Ex- treme Length Inches	Price Each	
									Semi- finished	Finished
<b>1</b>	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{1}{2}$	4	\$0.18	\$0.28
<b>3</b>	$\frac{3}{8}$		$\frac{9}{16}$			$\frac{7}{16}$	$\frac{11}{16}$	6	.26	.38
<b>5</b>	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{7}{8}$	8	.38	.54
<b>7</b>	$\frac{5}{8}$				$\frac{3}{4}$		$\frac{11}{16}$	10	.57	.82
<b>8</b>	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	$1\frac{1}{4}$	$11\frac{1}{2}$	.75	1.05

15° ANGLE WRENCHES  
DOUBLE HEAD

<b>23</b>	$\frac{3}{16}-\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	$1\frac{3}{32}-\frac{1}{2}$	4	.21	.32
<b>27</b>	$\frac{5}{16}-\frac{3}{8}$		$\frac{9}{16}$			$\frac{7}{16}$	$1\frac{13}{32}-\frac{11}{16}$	6	.31	.46
<b>31</b>	$\frac{7}{16}-\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{9}{16}$	$\frac{9}{16}$	$2\frac{5}{32}-\frac{7}{8}$	8	.45	.68
<b>34</b>	$\frac{1}{2}-\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{9}{16}-\frac{3}{4}$	$\frac{9}{16}$	$\frac{7}{8}-1\frac{1}{16}$	10	.68	1.08
<b>37</b>	$\frac{5}{8}-\frac{3}{4}$	1	1	$1\frac{1}{4}$	$\frac{3}{4}-\frac{7}{8}$	$\frac{7}{8}$	$1\frac{1}{16}-1\frac{1}{4}$	$11\frac{1}{2}$	.96	1.40
<b>21</b>	$\frac{1}{8}-\frac{3}{16}$	$\frac{1}{8}$		$\frac{5}{16}$			$\frac{5}{16}-1\frac{13}{32}$	$3\frac{1}{2}$	.17	.26
<b>21-A</b>	$\frac{1}{8}$	$\frac{1}{8}-\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}-\frac{3}{8}$		$\frac{1}{4}$	$\frac{5}{16}-\frac{3}{8}$	$3\frac{1}{2}$	.17	.26
<b>23-A</b>		$\frac{3}{16}-\frac{1}{4}$	$\frac{1}{4}-\frac{5}{16}$	$\frac{3}{8}-\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}-\frac{7}{16}$	4	.21	.32
<b>25-A</b>	$\frac{1}{4}$	$\frac{1}{4}-\frac{5}{16}$	$\frac{5}{16}-\frac{3}{8}$	$\frac{7}{16}-\frac{1}{2}$	$\frac{1}{4}-\frac{5}{16}$	$\frac{5}{16}$	$\frac{7}{16}-\frac{1}{2}$	5	.25	.38
<b>25-C</b>	$\frac{1}{4}$	$\frac{5}{16}-\frac{3}{8}$	$\frac{3}{8}-\frac{7}{16}$	$\frac{1}{2}-\frac{9}{16}$	$\frac{5}{16}-\frac{3}{8}$	$\frac{5}{16}$	$\frac{1}{2}-\frac{9}{16}$	5	.25	.38
<b>27-A</b>		$\frac{3}{8}-\frac{7}{16}$	$\frac{7}{16}-\frac{1}{2}$	$\frac{9}{16}-\frac{5}{8}$	$\frac{3}{8}-\frac{7}{16}$	$\frac{3}{8}$	$\frac{9}{16}-\frac{5}{8}$	6	.31	.46
<b>29-A</b>		$\frac{7}{16}-\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}-\frac{3}{4}$	$\frac{7}{16}-\frac{1}{2}$	$\frac{1}{2}$	$\frac{5}{8}-\frac{3}{4}$	7	.37	.56
<b>31-A</b>		$\frac{1}{2}-\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}-1\frac{1}{16}$	8	.45	.68
<b>33-A</b>	$\frac{1}{2}$	$\frac{5}{8}-\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}-1$	$\frac{9}{16}-1\frac{1}{16}$	$\frac{9}{16}-1\frac{1}{16}$	$\frac{7}{8}-1$	9	.55	.85
<b>37-A</b>	$\frac{3}{4}$	$\frac{7}{8}-1$	$\frac{7}{8}-1$	$1\frac{1}{8}-1\frac{1}{4}$	$\frac{7}{8}$	$\frac{3}{4}-\frac{7}{8}$	$1\frac{1}{8}-1\frac{1}{4}$	$11\frac{1}{2}$	.96	1.40

Stock No. 1 continued on page 117.





ARMSTRONG BROS.



TOOL CO., CHICAGO



## DEALERS' WRENCH STOCK No. 1

Continued

OFF-SET  $22\frac{1}{2}^\circ$  ANGLE WRENCHES  
DOUBLE HEAD

No.	For U. S. Standard Nuts Size Bolt, Inches	For Hexa. Head Cap Screws Diam. Screw In.	For Square Head Cap Screws Diam. Screw In.	For Set Screws Size Inches	Nor S.A.E. Std Nuts and Cap Screws, Size In.	For A. L. A. M. Std Nuts and Cap Screws, Size In.	Openings Milled Inches	Ex-treme Length Inches	Price Each	
									Semi-finished	Finished
671-A	$\frac{3}{16}$ - $\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	$1\frac{3}{32}$ - $\frac{1}{2}$	$4\frac{1}{2}$	\$0.25	\$0.38
672-B	$\frac{5}{16}$ - $\frac{3}{8}$		$\frac{9}{16}$			$\frac{7}{16}$	$1\frac{9}{32}$ - $1\frac{1}{16}$	$5\frac{3}{4}$	.31	.46
674-A	$\frac{7}{16}$ - $\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$			$2\frac{5}{32}$ - $\frac{7}{8}$	$8\frac{1}{4}$	.53	.78
675-A	$\frac{1}{2}$ - $\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{9}{16}$ - $\frac{3}{4}$	$\frac{9}{16}$	$\frac{7}{8}$ - $1\frac{1}{16}$	$9\frac{1}{2}$	.72	1.05
676-B	$\frac{3}{4}$ - $\frac{7}{8}$	1	1	$1\frac{1}{4}$	$\frac{7}{8}$ -1	$\frac{7}{8}$ -1	$1\frac{1}{4}$ - $1\frac{7}{16}$	11	.96	1.40

LIGHT "S" WRENCHES  
 $22\frac{1}{2}^\circ$  ANGLE

475-B		$\frac{3}{16}$ - $\frac{1}{4}$	$\frac{1}{4}$ - $\frac{5}{16}$	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{8}$ - $\frac{7}{16}$	$6\frac{1}{4}$	.27	.38
477-B	$\frac{1}{4}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{1}{2}$ - $\frac{9}{16}$	$7\frac{1}{8}$	.34	.47
479-B		$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{7}{16}$ - $\frac{1}{2}$	$\frac{9}{16}$ - $\frac{5}{8}$	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{3}{8}$	$\frac{9}{16}$ - $\frac{5}{8}$	$8\frac{1}{4}$	.43	.58
481-B		$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$ - $1\frac{1}{16}$	$9\frac{1}{4}$	.55	.72
483-B	$\frac{1}{2}$	$\frac{5}{8}$ - $\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$ -1	$\frac{9}{16}$ - $1\frac{1}{16}$	$\frac{9}{16}$ - $1\frac{1}{16}$	$\frac{7}{8}$ -1	$10\frac{3}{8}$	.70	.90

HEAVY "S" WRENCHES  
 $22\frac{1}{2}^\circ$  ANGLE

661-A	$\frac{1}{8}$ - $\frac{3}{16}$	$\frac{1}{8}$		$\frac{5}{16}$			$\frac{5}{16}$ - $1\frac{3}{32}$	4	.22	.32
661-F		$\frac{3}{16}$ - $\frac{1}{4}$	$\frac{1}{4}$ - $\frac{5}{16}$	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{8}$ - $\frac{7}{16}$	4	.22	.32
662-B		$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{1}{2}$ - $10\frac{3}{32}$	5	.29	.42
663-D	$\frac{1}{4}$ - $\frac{5}{16}$	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{7}{16}$ - $\frac{1}{2}$	$\frac{9}{16}$ - $\frac{5}{8}$	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{3}{8}$	$\frac{9}{16}$ - $\frac{5}{8}$	$6\frac{1}{4}$	.39	.56
663-C		$\frac{5}{8}$ - $\frac{7}{16}$	$\frac{9}{16}$			$\frac{7}{16}$	$1\frac{1}{16}$ - $2\frac{3}{32}$	$6\frac{1}{4}$	.39	.56
664-D		$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$ - $1\frac{1}{16}$	$7\frac{1}{2}$	.53	.75
665-C	$\frac{9}{16}$ - $\frac{5}{8}$				$\frac{3}{4}$		$3\frac{1}{32}$ - $1\frac{1}{16}$	9	.72	1.00
665-E	$\frac{1}{2}$	$\frac{5}{8}$ - $\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$ -1	$\frac{9}{16}$ - $1\frac{1}{16}$	$\frac{9}{16}$ - $1\frac{1}{16}$	$\frac{7}{8}$ -1	9	.72	1.00
666-F		$\frac{7}{8}$ - $1\frac{1}{8}$	$\frac{7}{8}$ - $1\frac{1}{8}$	$1\frac{1}{8}$ - $1\frac{3}{8}$		$\frac{3}{4}$	$1\frac{1}{8}$ - $1\frac{3}{8}$	$10\frac{1}{2}$	1.00	1.35
667-A	$\frac{3}{4}$ - $\frac{7}{8}$	1	1	$1\frac{1}{4}$	$\frac{7}{8}$ -1	$\frac{7}{8}$ -1	$1\frac{1}{4}$ - $1\frac{7}{16}$	12	1.45	1.90

Total Price Wrench Stock No. 1 (240 wrenches) Semi-finished \$116.58 Finished \$167.16  
Total Weight of Stock No. 1 (without board) 183 lbs.



## ARMSTRONG DEALERS' WRENCH STOCK AND DISPLAY BOARD

### STOCK No. 2

#### Hardware Dealers' General Assortment

This stock comprises the three best selling shapes, six of each of the sizes most used, 138 wrenches, with



All Openings for U. S. Std. Nuts  $\frac{1}{8}$  to  $\frac{7}{8}$  in.  
 “ “ “ Hex. Hd. Cap Screws  $\frac{1}{8}$  to 1 in.  
 “ “ “ Sq. Hd. Cap Screws  $\frac{1}{4}$  to  $\frac{3}{4}$  in.  
 “ “ “ Sq. Hd. Set Screws  $\frac{5}{16}$  to 1 in.  
 and many S. A. E. and A. L. A. M. sizes.

For complete details see page 119.

Dimensions of Board . . . 52 in. x 13 $\frac{1}{2}$  in.  
 Net Weight of Board . . . 15 Pounds  
 “ “ “ Wrenches . . . 90 “  
 Total Weight . . . 105 “

	Semi-finished	Finished
Price of No. 2 stock as described above and listed on page 119 -	\$65.64	\$94.86

The Board is not sold but is furnished to Dealers under conditions stated on page 114.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## DEALERS' WRENCH STOCK No. 2

15° ANGLE  
DOUBLE HEAD WRENCHES

No.	For U. S. Standard Nuts Size Bolt Inches	For Hex. Head Cap Screws Diam. Screw In.	For Square Head Cap Screws Diam. Screw In.	For Set Screws Size Inches	For S.A.E. St'd Nuts and Cap Screws, Size In.	For A. L. A. M. St'd Nuts and Cap Screws, Size In.	Opening Milled Inches	Ex-treme Length Inches	Price Each	
									Semi-finished	Finished
21	1/8-3/16	1/8		5/16			5/16-13/32	3 1/2	\$0.17	\$0.26
23	3/16-1/4	5/16	3/8	1/2	5/16	5/16	13/32-1/2	4	.21	.32
27	5/16-3/8		9/16			7/16	19/32-11/16	6	.31	.46
31	7/16-1/2	5/8	3/4	7/8	9/16	9/16	25/32-7/8	8	.45	.68
34	1/2-5/8	5/8	3/4	7/8	9/16-3/4	9/16	7/8-11/16	10	.68	1.08
37	5/8-3/4	1	1	1 1/4	3/4-7/8	7/8	1 1/16-1 1/4	11 1/2	.96	1.40
21-A	1/8	1/8-3/16	1/4	5/16-3/8		1/4	5/16-3/8	3 1/2	.17	.26
25-A	1/4	1/4-5/16	5/16-3/8	7/16-1/2	1/4-5/16	5/16	7/16-1/2	5	.25	.38
27-A		3/8-7/16	7/16-1/2	9/16-5/8	3/8-7/16	3/8	9/16-5/8	6	.31	.46
29-A		7/16-1/2	1/2	5/8-3/4	7/16-1/2	1/2	5/8-3/4	7	.37	.56
31-A		1/2-9/16	5/8	3/4	1/2	1/2	3/4-13/16	8	.45	.68
33-A	1/2	5/8-3/4	3/4	7/8-1	9/16-1 1/16	9/16-1 1/16	7/8-1	9	.55	.85

OFF-SET 22 1/2° ANGLE  
WRENCHES, DOUBLE HEAD

671-A	3/18-1/4	5/18	3/8	1/2	5/16	5/16	13/32-1/2	4 1/2	.25	.38
672-B	5/16-3/8		9/16			7/16	19/32-11/16	5 3/4	.31	.46
674-A	7/16-1/2	5/8	3/4	7/8			25/32-7/8	8 1/4	.53	.78
675-A	1/2-5/8	5/8	3/4	7/8	9/16-3/4	9/16	7/8-11/16	9 1/2	.72	1.05
676-B	3/4-7/8	1	1	1 1/4	7/8-1	7/8-1	1 1/4-1 7/16	11	.96	1.40

LIGHT "S" WRENCHES,  
22 1/2° ANGLE

475-B		3/18-1/4	1/4-5/16	3/8-7/16	1/4	1/4	3/8-7/16	6 1/4	.27	.38
477-B	1/4	5/18-3/8	3/8-7/16	1/2-9/16	5/16-3/8	5/16-3/8	1/2-9/16	7 1/8	.34	.47
479-B		3/8-7/16	7/18-1/2	9/16-5/8	3/8-7/16	3/8	9/16-5/8	8 1/4	.43	.58
481-B		1/2-9/16	1/2	3/4	1/2	1/2	3/4-13/16	9 1/4	.55	.72
483-B	1/2	5/8-3/4	3/4	7/8-1	9/16-1 1/16	9/16-1 1/16	7/8-1	10 3/4	.70	.90
485-C	5/8-3/4	1	1	1 1/4	3/4-7/8	7/8	1 1/16-1 1/4	12	1.00	1.30

Total price Wrench Stock No. 2 (138 wrenches) Semi-finished, \$65.64; Finished, \$94.86.  
Total weight of Stock No. 2 (without board) 90 lbs.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

For Manufacturers' Nuts and General Use



### LIGHT "S" CARRIAGE MAKERS' SET No. 1

22½° Angle. With Openings milled for Manufacturers' Standard Nuts.

No.	Size Bolts Inches	Openings Milled Inches	Ex- treme Length Inches	Thick- ness Heads Inches	Price			No.
					Un- finished	Semi- finished	Fin- ished	
475	3/16 & 1/4	13/32 & 1/2	6 1/4	7/32	\$0.18	\$0.27	\$0.38	475
477	1/4 & 5/16	1/2 & 5/8	7 1/8	1/4	.23	.34	.47	477
479	5/16 & 3/8	5/8 & 11/16	8 1/4	5/16	.29	.43	.58	479
481	3/8 & 7/16	11/16 & 27/32	9 1/4	3/8	.38	.55	.72	481
483	7/16 & 1/2	27/32 & 15/16	10 3/8	7/16	.50	.70	.90	483
List Price, Complete Set { in cardboard box . .					\$1.58	\$2.29	\$3.05	Wt. Set
Five Wrenches { in canvas roll . . .					2.08	2.79	3.55	2 3/4 lbs.

### LIGHT "S" GENERAL SERVICE SET No. 3

22½° Angle. With 12 Openings fitting Miscellaneous Nuts and Screws.

No.	Openings Milled Inches	Extreme Length Inches	Thickness Heads Inches	Price			No.
				Un- finished	Semi- finished	Fin- ished	
475-B	3/8 & 7/16	6 1/4	7/32	\$0.18	\$0.27	\$0.38	475-B
477-B	1/2 & 9/16	7 1/8	1/4	.23	.34	.47	477-B
479	5/8 & 11/16	8 1/4	5/16	.29	.43	.58	479
481-B	3/4 & 13/16	9 1/4	3/8	.38	.55	.72	481-B
483-B	7/8 & 1	10 3/8	7/16	.50	.70	.90	483-B
485-B	1 1/8 & 1 1/4	12	1/2	.70	1.00	1.30	485-B
List Price, Complete Set { in cardboard box . .				\$2.28	\$3.29	\$4.35	Wt. Set
Six Wrenches { in canvas roll . . .				2.78	3.79	4.85	4 3/4 lbs.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

For U. S. Standard Nuts, Cap Screws and Set Screws



## EXTRA RANGE "UTILITY" SET No. 10

15° Angle. Carefully selected because of utility, capacity, range and service for Machine Shops, Tool Rooms, Factories, Garages, Printing Establishments and general use. This set has an extraordinarily wide range of use, the openings including eleven bolt sizes, twenty-four cap screw and fifteen set screw sizes. 20 different openings, no duplicates.

No.	Openings Milled Inches	For U. S. Std Nuts Size Bolts	For Hexa- gon Head Cap Screws	For Square Head Cap Screws	For Set Screws Inches	Extreme Length	Price					
							Un- fin'd	Semi fin'd	Fin- ished			
21	$\frac{5}{16}$ & $\frac{13}{32}$	$\frac{1}{8}$ & $\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{5}{16}$	3½	\$0.12	\$0.17	\$0.26		
23-A	$\frac{9}{8}$ & $\frac{7}{16}$		$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{1}{2}$	4	.14	.21	.32		
25	$\frac{1}{2}$ & $\frac{19}{32}$	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	5	.17	.25	.38		
27-A	$\frac{9}{16}$ & $\frac{5}{8}$		$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{11}{16}$	6	.21	.31	.46		
29	$\frac{11}{16}$ & $\frac{25}{32}$	$\frac{3}{8}$ & $\frac{7}{16}$		$\frac{9}{16}$	$\frac{11}{16}$	$\frac{13}{16}$	7	.25	.37	.56		
31-A	$\frac{3}{4}$ & $\frac{13}{16}$		$\frac{1}{2}$ & $\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$ & $\frac{13}{16}$	$\frac{15}{16}$	8	.30	.45	.68		
33-A	$\frac{7}{8}$ & 1	$\frac{1}{2}$	$\frac{5}{8}$ & $\frac{3}{4}$	$\frac{3}{4}$	$\frac{7}{8}$ & 1		9	.37	.55	.85		
35	$\frac{31}{32}$ & $\frac{15}{16}$	$\frac{9}{16}$ & $\frac{5}{8}$		$\frac{7}{8}$ & $\frac{15}{16}$	$\frac{13}{16}$ & $\frac{15}{16}$	10	.46	.68	1.08			
37-S	$\frac{11}{8}$ & $\frac{13}{8}$		$\frac{7}{8}$ & $\frac{15}{8}$	$\frac{7}{8}$ & $\frac{15}{8}$	$\frac{13}{8}$ & $\frac{15}{8}$	11½	.66	.96	1.40			
39	$\frac{13}{4}$ & $\frac{17}{16}$	$\frac{3}{4}$ & $\frac{7}{8}$	1	1	$\frac{13}{4}$ & $\frac{17}{16}$	13	1.00	1.40	1.90			
List Price, Complete Set { in cardboard box, Weight of Set 8½ lbs. . .										\$3.68	\$5.35	\$7.89
Ten Wrenches { in canvas roll . . . . .										4.43	6.10	8.64

## "UTILITY" SET No. 6

15° Angle. An especially serviceable set, combining eleven bolt sizes, eight hexagon cap screw sizes, eight square head cap screw sizes, and nine set screw sizes — 32 different uses, 12 openings, no duplicates.

25-A	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{5}{16}$ & $\frac{3}{8}$	$\frac{7}{16}$ & $\frac{1}{2}$	5	\$0.17	\$0.25	\$0.38		
27-A	$\frac{9}{16}$ & $\frac{5}{8}$		$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{9}{16}$ & $\frac{5}{8}$	6	.21	.31	.46		
28	$\frac{19}{32}$ & $\frac{25}{32}$	$\frac{5}{16}$ & $\frac{7}{16}$					7	.25	.37	.56	
30	$\frac{11}{16}$ & $\frac{7}{8}$	$\frac{3}{8}$ & $\frac{1}{2}$	$\frac{5}{8}$	$\frac{9}{16}$ & $\frac{3}{4}$	$\frac{11}{16}$ & $\frac{7}{8}$	8	.30	.45	.68		
32-A	$\frac{3}{4}$ & 1		$\frac{1}{2}$ & $\frac{3}{4}$	$\frac{5}{8}$	$\frac{3}{4}$ & 1	9	.37	.55	.85		
37	$\frac{13}{16}$ & $\frac{15}{16}$	$\frac{5}{8}$ & $\frac{3}{4}$	1	1	$\frac{13}{16}$ & $\frac{15}{16}$	$11\frac{1}{2}$	.66	.96	1.40		
List Price, Complete Set { in cardboard box, Weight of Set $3\frac{1}{2}$ lbs. . .									\$1.96	\$2.89	\$4.33
Six Wrenches { in canvas roll . . . . .									2.46	3.39	4.83



ARMSTRONG BROS.

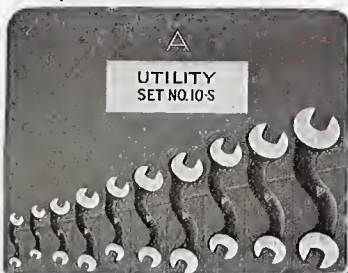


TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

For U. S. Standard Nuts, Cap Screws and Set Screws



## LIGHT "S" HANDY SET No. 12

22½° Angle. With Openings milled for U. S. Standard Nuts.

No.	For U. S. Standard Nut Size Bolt Inches	Openings Milled Inches	Ex-treme Length Inches	Thick-ness Heads Inches	Price			No.
					Un-finished	Semi-finished	Fin-ished	
477-C	¼ & ⅝	½ & 1⅞	7⅞	¼	\$0.23	\$0.34	\$0.47	477-C
479-C	⅝ & ¾	1⅞ & 1⅞	8¼	⅝	.29	.43	.58	479-C
481-C	¾ & 1⅞	1⅞ & 2⅞	9¼	¾	.38	.55	.72	481-C
483-C	1⅞ & 1⅞	2⅞ & 7/8	10⅞	7/8	.50	.70	.90	483-C
485-D	1⅞ & ⅝	7/8 & 1⅞	12	1½	.70	1.00	1.30	485-D
List Price, Complete Set { in cardboard box .					\$2.10	\$3.02	\$3.97	Wt. Set
Five Wrenches { in canvas roll . . .					2.60	3.52	4.47	4½ lbs.

## HEAVY "S" UTILITY SET No. 10-S

22½° Angle. An exceptionally strong, handy, well assorted Set of "S" Wrenches. Carefully selected because of utility, capacity, range and service for Machine Shops, Tool Rooms, Factories, Printing Establishments and general use. 20 openings, no duplicates.

No.	Openings Milled Inches	For U. S. Standard Nuts Size Bolts Inches	For Hex. Hd. Cap Screws Diameter Screw In.	For Sq. Hd. Cap Screws Diameter Screw In.	For Set Screws Inches	Extreme Length In.	Price		
							Un-finished	Semi-finished	Finished
661-A	⅝ & 1⅞	⅞ & 3/8	1/8	1/8	⅝	4	\$0.15	\$0.22	\$0.32
661-F	⅞ & 1⅞	1/4 & 5/16	3/16 & 1/4	1/4 & 5/16	⅞ & 7/16	4	.15	.22	.32
662-B	1/2 & 1⅞	1/4 & 5/16	5/16	3/8	1/2	5	.20	.29	.42
663-D	⅞ & ⅞	1/4 & 5/16	3/8 & 7/16	7/16 & 1/2	⅞ & 5/8	6¼	.27	.39	.56
663-C	1⅞ & 2⅞	3/8 & 7/16	1/2 & ⅞	⅞	1⅞	6¼	.27	.39	.56
664-D	3/4 & 1⅞	1/2 & ⅞	5/8 & 3/4	3/4	7/8 & 1	7½	.37	.53	.75
665-E	7/8 & 1	1/2	5/8 & 3/4	3/4	7/8 & 1	9	.50	.72	1.00
665-C	1⅞ & 1⅞	⅞ & 5/8	7/8 & 1⅞	7/8 & 1⅞	1⅞ & 1⅞	9	.50	.72	1.00
666-F	1⅞ & 1⅞	3/4 & 7/8	1	1	1⅞ & 1⅞	10½	.74	1.00	1.35
667-A	1⅞ & 1⅞	3/4 & 7/8	1	1	1⅞ & 1⅞	12	1.10	1.45	1.90
List Price, Complete Set { in cardboard box, Weight of Set 11 lbs. . .							\$4.25	\$5.93	\$8.18
Ten Wrenches { in canvas roll . . . . .							5.00	6.68	8.98





ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

With Metric and Combination Openings



### COMBINATION SET No. 9

15° Angle. A handy set of seven wrenches, each fitting U. S. Standard Nut and Cap Screw of same diameter.

No.	Openings Milled Inches	For U. S. Standard Nut Size Bolt Inches	For U. S. Stand. Hex. Cap Screws Diameter Inches	Ex- treme Length Inches	Price			No.
					Un- fin- ished	Semi- fin- ished	Fin- ished	
25-A	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{4}$	5	\$0.17	\$0.25	\$0.38	25-A
25	$\frac{1}{2}$ & $\frac{19}{32}$	$\frac{5}{16}$	$\frac{5}{16}$	5	.17	.25	.38	25
27-B	$\frac{9}{16}$ & $\frac{11}{16}$	$\frac{3}{8}$	$\frac{3}{8}$	6	.21	.31	.46	27-B
28-S	$\frac{5}{8}$ & $\frac{25}{32}$	$\frac{7}{16}$	$\frac{7}{16}$	7	.25	.37	.56	28-S
31-B	$\frac{3}{4}$ & $\frac{7}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	8	.30	.45	.68	31-B
34	$\frac{7}{8}$ & $\frac{15}{16}$	$\frac{5}{8}$	$\frac{5}{8}$	10	.46	.68	1.08	34
36-A	1 & $\frac{11}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	11 $\frac{1}{2}$	.66	.96	1.40	36-A
Price List, Complete Set { in cardboard box . .					\$2.22	\$3.27	\$4.94	Wt. Set
Seven Wrenches { in canvas roll . . .					2.72	3.77	5.44	4 $\frac{3}{4}$ lbs.

### METRIC "THIN" SET No. 11-M (15° ANGLE)

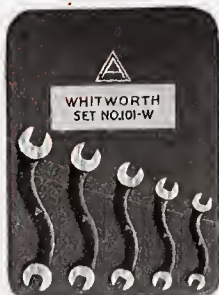
No.	Openings Milled m/m	Extreme Length m/m	Thickness Heads m/m	Price			No.
				Un- finished	Semi- finished	Fin- ished	
623-M	10 & 12	111	3.9	\$0.17	\$0.25	\$0.38	623-M
626-M	14 & 16	140	4.8	.22	.32	.48	626-M
629-M	18 & 20	165	5.5	.28	.40	.60	629-M
632-M	22 & 25	213.3	7.1	.40	.56	.80	632-M
635-M	28 & 30	254	8.7	.60	.84	1.15	635-M
List Price, Complete Set { in cardboard box . .				\$1.67	\$2.37	\$3.41	Wt. Set
Five Wrenches { in canvas roll . . .				2.17	2.87	3.91	2 $\frac{1}{2}$ lbs.

For complete list of stock Whitworth and Metric Wrenches see page 113.



## ARMSTRONG WRENCH SETS

### For Whitworth Standard Nuts



### LIGHT "S" WHITWORTH SET No. 101-W

22½° Angle. With Openings milled for Whitworth Standard Nuts.

No.	For Whitworth Standard Nuts Size Bolts Inches	Openings Milled Inches	Ex-treme Length Inches	Price			No.
				Un-finished	Semi-finished	Fin-ished	
475-W	3/16 & 1/4	29/64 & 17/32	6 1/4	\$0.18	\$0.27	\$0.38	475-W
477-W	1/4 & 5/16	17/32 & 39/64	7 1/4	.23	.34	.47	477-W
479-W	5/16 & 3/8	39/64 & 45/64	8 1/4	.29	.43	.58	479-W
481-W	3/8 & 7/16	45/64 & 53/64	9 1/4	.38	.55	.72	481-W
483-W	7/16 & 1/2	53/64 & 59/64	10 3/8	.50	.70	.90	483-W
List Price, Complete Set { in cardboard box . .				\$1.58	\$2.29	\$3.05	Wt. Set 2 3/4 lbs.
Five Wrenches { in canvas roll . . . .				2.08	2.79	3.55	

### "HANDY" WHITWORTH SET No. 105-W

15° Angle. With Openings milled for Whitworth Standard Nuts.

No.	For Whitworth Standard Nuts Size Bolts Inches	Openings Milled Inches	Ex-treme Length Inches	Price			No.
				Un-finished	Semi-finished	Fin-ished	
21-W	1/8 & 3/16	11/32 & 29/64	3 1/2	\$0.12	\$0.17	\$0.26	21-W
25-W	1/4 & 5/16	17/32 & 39/64	4 7/8	.17	.25	.38	25-W
29-W	3/8 & 7/16	45/64 & 53/64	6 7/8	.25	.37	.56	29-W
33-W	1/2 & 9/16	59/64 & 11/64	8 3/4	.37	.55	.85	33-W
37-W	5/8 & 3/4	17/64 & 119/64	11 1/2	.66	.96	1.40	37-W
List Price, Complete Set { in cardboard box . .				\$1.57	\$2.30	\$3.45	Wt. Set 3 1/2 lbs
Five Wrenches { in canvas roll . . . .				2.07	2.80	3.95	

For complete list of stock Whitworth and Merric Wrenches see page 113.



## AUTOMOTIVE WRENCH SECTION

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For the convenience of our Automotive trade we have segregated in this section of our catalog a complete line of Armstrong drop forged wrenches adapted for automotive use, including all S. A. E. standard openings in our regular 15° Engineers', Light "S," Offset Head, Thin and Socket Wrenches; also our new "Aero" line of featherweight wrenches and carefully selected sets and stocks of these different types.





ARMSTRONG BROS.



TOOL CO., CHICAGO

**"AERO SIX" TAPPET WRENCH SET No. A-68**

15° ANGLE, DOUBLE HEAD

Extra Long, Featherweight Wrenches, Specially Adapted  
for Airplane Use

This Wrench Set is not made up from stock wrenches but is special in both design and quality; made to meet the requirements of the service for which it is intended.

The wrenches are extremely long and light compared to their capacity, and their strength is based not upon the bulk but on the quality of the material in them.

They are drop forged from Chrome-Nickel alloy steel, heat treated, oil tempered and finished. They are in a class by themselves as to quality.

No.	Size Openings Inches	Fitting S. A. E. Standard Nuts and Cap Screws Size Inches	Extreme Length Inches	Thickness of Head Inches	Price Each Finished	No.
A - 6	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{4}$ & $\frac{5}{16}$	6	$\frac{5}{32}$	\$1.25	A - 6
A - 6	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{4}$ & $\frac{5}{16}$	6	$\frac{5}{32}$	1.25	A - 6
A - 7	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{8}$ & $\frac{7}{16}$	7	$\frac{3}{16}$	1.65	A - 7
A - 7	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{8}$ & $\frac{7}{16}$	7	$\frac{3}{16}$	1.65	A - 7
A - 8	$\frac{3}{4}$ & $\frac{7}{8}$	$\frac{1}{2}$ & $\frac{9}{16}$	8	$\frac{7}{32}$	2.25	A - 8
A - 8	$\frac{3}{4}$ & $\frac{7}{8}$	$\frac{1}{2}$ & $\frac{9}{16}$	8	$\frac{7}{32}$	2.25	A - 8
List Price, Complete Set } in cardboard box . . . . .					\$10.30	Wt. Set 1 lb.
Six Wrenches } in canvas roll . . . . .					10.80	



ARMSTRONG BROS.

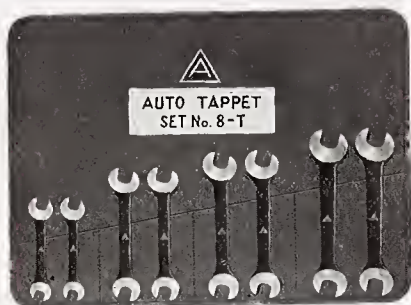


TOOL CO., CHICAGO



# AUTOMOTIVE TAPPET WRENCH SET No. 8-T

For Adjusting Gas Engine Valve Tappets



This set is made up from THIN Type Drop-Forged Wrenches especially for use in adjusting valve tappets. It is a real "Garage Man's Friend" on this work for it will fit the tappets of practically all motors used on automobiles, motor trucks, motor boats or airplanes. It is also adapted to a wide variety of other uses as shown by the following list.

No.	Size Openings Inches	Fitting S. A. L. Std Nuts and Cap Screws Size Inches	Fitting A. L. A. M. Std Nuts and Cap Screws Size Inches	Fitting U. S. Std Nuts Size Inches	Fitting U. S. Std. Hex. Head Cap Screws Size Inches	Price Each			No.
						Un- finished	Semi- finished	Fin- ished	
623-E	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$		$\frac{3}{16}$ - $\frac{1}{4}$	\$0.17	\$0.25	\$0.38	623-E
623-E	$\frac{3}{8}$ - $\frac{7}{16}$	$\frac{1}{4}$	$\frac{1}{4}$		$\frac{3}{16}$ - $\frac{1}{4}$	.17	.25	.38	623-E
1626-E	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{1}{4}$	$\frac{5}{16}$ - $\frac{3}{8}$	.22	.32	.48	1626-E
1626-E	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{5}{16}$ - $\frac{3}{8}$	$\frac{1}{4}$	$\frac{5}{16}$ - $\frac{3}{8}$	.22	.32	.48	1626-E
629-E	$\frac{5}{8}$ - $\frac{11}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	.28	.40	.60	629-E
629-E	$\frac{5}{8}$ - $\frac{11}{16}$	$\frac{7}{16}$	$\frac{7}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	.28	.40	.60	629-E
1629-C	$\frac{3}{4}$ - $\frac{7}{8}$	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{1}{2}$	$\frac{1}{2}$ - $\frac{5}{8}$	.28	.40	.60	1629-C
1629-C	$\frac{3}{4}$ - $\frac{7}{8}$	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{1}{2}$ - $\frac{9}{16}$	$\frac{1}{2}$	$\frac{1}{2}$ - $\frac{5}{8}$	.28	.40	.60	1629-C
List Price complete { In box . . .						1.90	2.74	4.12	Wt. Set 2 lbs.
set Eight Wrenches { In canvas roll						2.65	3.49	4.87	



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

For Automotive Use



## AUTOMOTIVE SET No. 4

22½° Angle. With Openings milled for S. A. E. Standard Nuts and Cap Screws.

No.	For S. A. E. Standard Nuts and Cap Screws Size Inches	Openings Milled Inches	Ex- treme Length Inches	Thick- ness Head Inches	Price			No.
					Un- finished	Semi- finished	Fin- ished	
671	¼ & ⅝ <sub>16</sub>	⅞ <sub>16</sub> & ½	4½	¼	\$0.17	\$0.25	\$0.38	671
672	⅜ & ⅞ <sub>16</sub>	⅞ <sub>16</sub> & ⅝	5¼	⅝ <sub>32</sub>	.21	.31	.46	672
673	½ & ⅞ <sub>16</sub>	¾ & ⅞	7	11/32	.27	.40	.60	673
674	⅝ <sub>16</sub> & ⅞	⅞ & 1⅞ <sub>16</sub>	8¾	⅜	.36	.53	.78	674
675	1⅞ <sub>16</sub> & ¾	1 & 1⅞ <sub>16</sub>	9½	⅞ <sub>16</sub>	.50	.72	1.05	675
List Price, Complete Set { in cardboard box . . .					\$1.51	\$2.21	\$3.27	Wt. Set
Five Wrenches { in canvas roll . . .					2.01	2.71	3.77	2½ lbs.

## AUTOMOTIVE "THIN" SET No. 5-T

15° Angle. With Openings milled for S. A. E. Standard Nuts and Cap Screws.

No.	S. A. E. Std Nuts and Cap Screws Sizes Inches	Openings Milled Inches	Ex- treme Length	Thick- ness Head	Price			No.
					Un- finished	Semi- finished	Fin- ished	
1623-C	¼ & ⅝ <sub>16</sub>	⅞ <sub>16</sub> & ½	4⅜	⅝ <sub>32</sub>	\$0.17	\$0.25	\$0.38	1623-C
1626-C	⅜ & ⅞ <sub>16</sub>	⅞ <sub>16</sub> & ⅝	5½	⅜ <sub>16</sub>	.22	.32	.48	1626-C
1629-C	½ & ⅞ <sub>16</sub>	¾ & ⅞	6½	⅞ <sub>32</sub>	.28	.40	.60	1629-C
1632-C	⅝ & 1⅞ <sub>16</sub>	1⅞ <sub>16</sub> & 1	8	⅝ <sub>32</sub>	.40	.56	.80	1632-C
1635-B	¾ & ⅞	1⅞ <sub>16</sub> & 1¼	10	1⅞ <sub>32</sub>	.60	.84	1.15	1635-B
List Price, Complete Set { in cardboard box . . .					\$1.67	\$2.37	\$3.41	Wt. Set
Five Wrenches { in canvas roll . . .					2.17	2.87	3.91	2½ lbs.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

For Automotive Use



### AUTOMOTIVE LIGHT "S" SET No. 2

22½° Angle. With Openings milled for S. A. E. Standard Nuts and Cap Screws.

No.	For S. A. E. St'd Nuts and Cap Screws Size Inches	Openings Milled Inches	Ex- treme Length Inches	Thick- ness Heads Inches	Price			No.
					Un- fin- ished	Semi- fin- ished	Fin- ished	
1477-A	¼ & ⅝	⅞ & ½	7⅞	¼	\$0.23	\$0.34	\$0.47	1477-A
1479-B	⅜ & ⅞	⅞ & ⅝	8¼	⅝	.29	.43	.58	1479-B
1481-A	½ & ⅞	¾ & ⅞	9¼	¾	.38	.55	.72	1481-A
1483-A	⅝ & 1⅞	1⅞ & 1	10⅞	⅞	.50	.70	.90	1483-A
1485-C	¾ & ⅞	1⅞ & 1¼	12	½	.70	1.00	1.30	1485-C

List Price, Complete Set { in cardboard box . . . \$2.10  
Five Wrenches { in canvas roll . . . 2.60

\$3.02 \$3.97  
3.52 4.47

Wt. Set  
4½ lbs.

### AUTOMOTIVE SET No. 5

15° Angle. With Openings milled for S. A. E. Standard Nuts and Cap Screws.

No.	For S. A. E. Standard Nuts and Cap Screws Size Inches	Openings Milled Inches	Ex- treme Length Inches	Price			No.
				Un- finished	Semi- finished	Fin- ished	
425-A	¼ & ⅝	⅞ & ½	5	\$0.17	\$0.25	\$0.38	425-A
427-A	⅜ & ⅞	⅞ & ⅝	6	.21	.31	.46	427-A
431-B	½ & ⅞	¾ & ⅞	8	.30	.45	.68	431-B
433-B	⅝ & 1⅞	1⅞ & 1	9	.37	.55	.85	433-B
437	¾ & ⅞	1⅞ & 1¼	11½	.66	.96	1.40	437

List Price, Complete Set { in cardboard box . . \$1.71  
Five Wrenches { in canvas roll . . . 2.21

\$2.52 \$3.77  
3.02 4.27

Wt. Set  
3¾ lbs.



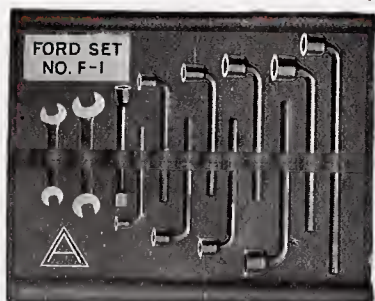
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## ARMSTRONG "FORD" WRENCH SETS



FORD SET No. F-1

No.	Type of Wrench	Size of Opening Inches	Extreme Length Inches	PRICE			No.
				Un-finished	Semi-finished	Finished	
25-B	D. H. Cap Screw	$\frac{7}{16}$ & $\frac{9}{16}$	5	\$0.17	\$0.25	\$0.38	25-B
27	D. H. Engineers'	$\frac{19}{32}$ & $\frac{11}{16}$	6	.21	.31	.46	27
863-D	Offset Socket	$\frac{29}{64}$	$4\frac{1}{2}$	.24	.36	.48	863-A
864-A	Offset Socket	$\frac{33}{64}$	$5\frac{1}{2}$	.26	.39	.52	864-A
965-D	Straight Socket	$\frac{37}{64}$	$5\frac{3}{4}$	.29	.44	.58	965-D
865-D	Offset Socket	$\frac{37}{64}$	$6\frac{1}{2}$	.29	.44	.58	865-D
865-A	Offset Socket	$\frac{39}{64}$	$6\frac{1}{2}$	.29	.44	.58	865-A
866-D F	Offset Socket	$\frac{41}{64}$	11	.42	.63	.84	866-D F
867-A	Offset Socket	$\frac{45}{64}$	$7\frac{1}{4}$	.36	.54	.72	867-A
867-D	Offset Socket	$\frac{49}{64}$	$7\frac{1}{4}$	.36	.54	.72	867-D
868-A	Offset Socket	$\frac{51}{64}$	8	.40	.60	.80	868-A
869-A	Offset Socket	$\frac{57}{64}$	8	.46	.69	.92	869-A

List Price, Complete Set	{ in cardboard box . . . . .	\$3.75	\$5.63	\$7.58	Wt. Set
Twelve Wrenches	{ in canvas roll . . . . .	4.25	6.13	8.08	$5\frac{1}{2}$ lbs.

FORD SET No. F-2

No.	Type of Wrench	Size of Opening Inches	Extreme Length Inches	PRICE			No.
				Un-finished	Semi-finished	Finished	
27	D. H. Engineers'	$\frac{19}{32}$ & $\frac{11}{16}$	$5\frac{7}{8}$	\$0.21	\$0.31	\$0.46	27
29-A	D. H. Cap Screw	$\frac{5}{8}$ & $\frac{3}{4}$	$6\frac{7}{8}$	.25	.37	.56	29-A
433-B	D. H. Engineers'	$\frac{15}{16}$ & 1	$8\frac{3}{4}$	.37	.55	.85	433-B
34-A	D. H. Cap Screw	$\frac{7}{8}$ & $1\frac{1}{8}$	$9\frac{3}{4}$	.46	.68	1.08	34-A
866-D F	Offset Socket	$\frac{41}{64}$	11	.42	.63	.84	866-D F

List Price, Complete Set	{ in cardboard box . . . . .	\$1.71	\$2.54	\$3.79	Wt. Set
Five Wrenches	{ in canvas roll . . . . .	2.21	3.04	4.29	$3\frac{1}{2}$ lbs.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## ARMSTRONG WRENCH SETS

For Automotive Use



### "EXTRA RANGE" GARAGE SET No. 10-G

15° Angle. Fits 70 different Automobile Nuts and Screws. No duplicates.

No.	Openings Milled Inches	For U. S. Standard Nuts Diameter Bolts Inches	For S. A. E. Standard Nuts and Cap Screws Size Inches	For A. L. A. M. Standard Nuts and Cap Screws Size Inches	For U. S. Standard Cap Screws		For Set Screws Size Inches	Price		
					Hexagon Size Inches	Square Size Inches		Un- finished	Semi- finished	Fin- ished
21-A	$\frac{5}{16}$ & $\frac{3}{8}$	$\frac{1}{8}$		$\frac{1}{4}$	$\frac{1}{8}$ & $\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$ & $\frac{3}{8}$	\$0.12	\$0.17	\$0.26
23	$\frac{13}{32}$ & $\frac{1}{2}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	.14	.21	.32
425-B	$\frac{7}{16}$ & $\frac{9}{16}$		$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{5}{16}$ & $\frac{3}{16}$	$\frac{7}{16}$ & $\frac{9}{16}$	.17	.25	.38
27	$\frac{19}{32}$ & $\frac{11}{16}$	$\frac{5}{16}$ & $\frac{3}{8}$		$\frac{7}{16}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{7}{16}$	.21	.31	.46
429-A	$\frac{5}{8}$ & $\frac{3}{4}$		$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{2}$	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{5}{8}$	$\frac{5}{8}$ & $\frac{3}{4}$	.25	.37	.56
31-C	$\frac{13}{16}$ & $\frac{7}{8}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	.30	.45	.68
32	$\frac{29}{32}$ & $\frac{21}{32}$	$\frac{7}{16}$ & $\frac{9}{16}$						.37	.55	.85
433-B	$\frac{15}{16}$ & 1		$\frac{5}{8}$ & $\frac{11}{16}$	$\frac{5}{8}$ & $\frac{11}{16}$	$\frac{3}{4}$	1	.37	.55	.85	
37-A	$\frac{11}{16}$ & $\frac{13}{16}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$ & $\frac{7}{8}$	$\frac{3}{8}$ & 1	$\frac{7}{8}$ & 1	$\frac{15}{16}$ & $\frac{1}{4}$	.66	.96	1.40
38	$\frac{11}{16}$ & $\frac{13}{16}$	$\frac{5}{8}$ & $\frac{7}{8}$	$\frac{3}{4}$ & 1				1.00	1.40	1.90	

List Price, Complete Set, 10 Wrenches { in cardboard box, Weight of Set 7 $\frac{3}{4}$  lbs. . . . \$3.59 \$5.22 \$7.66  
 { in canvas roll . . . . . 4.34 5.97 8.41

### "HANDY" GARAGE SET No. 6-G

15° Angle. Fits 40 different Nuts and Screws most used on automobiles.

No.	Openings Milled Inches	For U. S. Standard Nuts Diameter Bolts Inches	For S. A. E. Standard Nuts and Cap Screws Size Inches	For A. L. A. M. Standard Nuts and Cap Screws Size Inches	For U. S. Standard Cap Screws		For Set Screws Size Inches	Price		
					Hexagon Size Inches	Square Size Inches		Un- finished	Semi- finished	Fin- ished
23	$\frac{13}{32}$ & $\frac{1}{2}$	$\frac{3}{16}$ & $\frac{1}{4}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	\$0.14	\$0.21	\$0.32
425-B	$\frac{7}{16}$ & $\frac{9}{16}$		$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{5}{16}$ & $\frac{3}{16}$	$\frac{7}{16}$ & $\frac{9}{16}$	.17	.25	.38
27	$\frac{19}{32}$ & $\frac{11}{16}$	$\frac{5}{16}$ & $\frac{3}{8}$		$\frac{7}{16}$	$\frac{7}{16}$	$\frac{9}{16}$	$\frac{7}{16}$	.21	.31	.46
429-A	$\frac{5}{8}$ & $\frac{3}{4}$		$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{2}$	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{1}{2}$ & $\frac{5}{8}$	$\frac{5}{8}$ & $\frac{3}{4}$	.25	.37	.56
31-C	$\frac{13}{16}$ & $\frac{7}{8}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{9}{16}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	.30	.45	.68
433-B	$\frac{15}{16}$ & 1		$\frac{5}{8}$ & $\frac{11}{16}$	$\frac{5}{8}$ & $\frac{11}{16}$	$\frac{3}{4}$	1	.37	.55	.85	

List Price, Complete Set, 6 Wrenches { in cardboard box, Weight of Set 2 $\frac{1}{2}$  lbs. . . . \$1.44 \$2.14 \$3.25  
 { in canvas roll . . . . . 1.94 2.64 3.75





## AUTOMOTIVE WRENCHES

15° ANGLE, DOUBLE HEAD  
For S. A. E. Standard Nuts and Cap Screws



In stock as listed with openings for S. A. E. Standard Finished Nuts and Cap Screws.

For carefully selected S. A. E. Wrench Sets see pages 125-128.

No.	For S. A. E. Std Nuts and Cap Screws Size Inches	Openings Milled Inches	Ex- treme Length Inches	Weight Each Pounds	Price			No.
					Un- fin- ished	Semi- fin- ished	Fin- ished	
425-A	1/4 & 5/16	7/16 & 1/2	5	1/5	\$0.17	\$0.25	\$0.38	425-A
425-B	1/4 & 3/8	7/16 & 9/16	5	1/5	.17	.25	.38	425-B
425-C	5/16 & 3/8	1/2 & 9/16	5	1/5	.17	.25	.38	425-C
426-A	5/16 & 7/16	1/2 & 5/8	6	1/4	.21	.31	.46	426-A
427-A	3/8 & 7/16	9/16 & 5/8	6	1/4	.21	.31	.46	427-A
428-A	3/8 & 1/2	9/16 & 3/4	7	1/3	.25	.37	.56	428-A
429-A	7/16 & 1/2	5/8 & 3/4	7	1/3	.25	.37	.56	429-A
431-B	1/2 & 9/16	3/4 & 7/8	8	1/2	.30	.45	.68	431-B
432-A	1/2 & 11/16	3/4 & 1	9	3/4	.37	.55	.85	432-A
433-A	9/16 & 11/16	7/8 & 1	9	3/4	.37	.55	.85	433-A
433-B	5/8 & 11/16	15/16 & 1	9	3/4	.37	.55	.85	433-B
437	3/4 & 7/8	11/16 & 1 1/4	11 1/2	1 3/4	.66	.96	1.40	437
439	7/8 & 1	1 1/4 & 1 1/4	13	2 3/4	1.00	1.40	1.90	439
441	1 & 1 1/8	1 7/8 & 1 7/8	15	4	1.40	1.90	2.60	441
443	1 1/8 & 1 1/4	1 5/8 & 1 13/16	17	5	1.90	2.65	3.50	443
445	1 1/4 & 1 3/8	1 13/16 & 2	19	7 1/2	2.60	3.60	4.70	445
447	1 3/8 & 1 1/2	2 & 2 3/16	21	10	3.80	5.25	6.70	447

The S. A. E. (Society of Automobile Engineers) screw standard which is now in universal use in the American Automotive Industries differs from the now obsolete A. L. A. M. screw standard as to the distance across flats of the heads and nuts of the 1/4, 7/16 and 3/4 inch screws, the changes being from 3/8 to 7/16, from 11/16 to 5/8 and from 1 1/8 to 1 1/16 inch respectively.

The A. L. A. M. Screw Standard did not go beyond 1 inch diameter screw. The S. A. E. standard proceeds by eighths to and including 1 1/2 inch diameter screw.



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## AUTOMOTIVE THIN WRENCHES

15° ANGLE, DOUBLE HEAD

For S. A. E. Standard Nuts and Cap Screws



In stock as listed with openings for S. A. E. Standard Nuts and Cap Screws.

No.	For S. A. E. Standard Nuts and Cap Screws Size, Inches	Openings Milled Inches	Ex- treme Length In.	Weight Each Pounds	Price			No.
					Un- fin- ished	Semi- fin- ished	Fin- ished	
1623-C	$\frac{1}{4}$ & $\frac{5}{16}$	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{4}{8}$	$\frac{1}{8}$	\$0.17	\$0.25	\$0.38	1623-C
1623-F	$\frac{1}{4}$ & $\frac{3}{8}$	$\frac{7}{16}$ & $\frac{9}{16}$	$\frac{4}{8}$	$\frac{1}{8}$	.17	.25	.38	1623-F
1626-E	$\frac{5}{16}$ & $\frac{3}{8}$	$\frac{1}{2}$ & $\frac{9}{16}$	$\frac{5}{2}$	$\frac{1}{5}$	.22	.32	.48	1626-E
1626-C	$\frac{3}{8}$ & $\frac{7}{16}$	$\frac{9}{16}$ & $\frac{5}{8}$	$\frac{5}{2}$	$\frac{1}{5}$	.22	.32	.48	1626-C
1629-F	$\frac{7}{16}$ & $\frac{1}{2}$	$\frac{5}{8}$ & $\frac{3}{4}$	$\frac{6}{2}$	$\frac{1}{4}$	.28	.40	.60	1629-F
1629-C	$\frac{1}{2}$ & $\frac{9}{16}$	$\frac{3}{4}$ & $\frac{7}{8}$	$\frac{6}{2}$	$\frac{1}{4}$	.28	.40	.60	1629-C
1632-B	$\frac{9}{16}$ & $\frac{3}{4}$	$\frac{7}{8}$ & $1\frac{1}{16}$	8	$\frac{5}{8}$	.40	.56	.80	1632-B
1632-C	$\frac{5}{8}$ & $1\frac{1}{16}$	$1\frac{1}{16}$ & 1	8	$\frac{5}{8}$	.40	.56	.80	1632-C
1635-B	$\frac{3}{4}$ & $\frac{7}{8}$	$1\frac{1}{16}$ & $1\frac{1}{4}$	10	1	.60	.84	1.15	1635-B
1638	$\frac{3}{4}$ & 1	$1\frac{1}{16}$ & $1\frac{1}{4}$	12	2	1.00	1.30	1.75	1638
1638-A	$\frac{7}{8}$ & 1	$1\frac{1}{4}$ & $1\frac{1}{16}$	12	2	1.00	1.30	1.75	1638-A
1638-B	$\frac{7}{8}$ & $1\frac{1}{8}$	$1\frac{1}{4}$ & $1\frac{5}{8}$	12	2	1.00	1.30	1.75	1638-B

For carefully selected S. A. E. Wrench Sets see pages 125-128.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## AUTOMOTIVE OFF-SET WRENCHES

22½° ANGLE, DOUBLE HEAD

For S. A. E. Standard Nuts and Cap Screws



In stock as listed with openings for S. A. E. standard nuts and cap screws.

No.	For S. A. E. Standard Nuts and Cap Screws Size Inches	Openings Milled Inches	Extreme Length Inches	Weight Each Pounds	Price Each			No.
					Un- finished	Semi- finished	Fin- ished	
671	¼ & ⅝ <sub>16</sub>	⅜ & ½	4½	¼	\$0.17	\$0.25	\$0.38	671
672	⅜ & ⅞ <sub>16</sub>	⅞ <sub>16</sub> & ⅝	5¾	¼	.21	.31	.46	672
673	½ & ⅞ <sub>16</sub>	¾ & ⅞	7	½	.27	.40	.60	673
674	⅞ <sub>16</sub> & ⅝	⅞ & 1⅝ <sub>16</sub>	8¼	¾	.36	.53	.78	674
675	1⅞ <sub>16</sub> & ¾	1 & 1⅞ <sub>16</sub>	9½	1	.50	.72	1.05	675
676	⅞ & 1	1¼ & 1⅞ <sub>16</sub>	11	1¾	.68	.96	1.40	676
677	1⅞ & 1¼	1⅞ & 1⅞ <sub>16</sub>	13	3½	1.15	1.75	2.35	677
678	1⅞ & 1½	2 & 2⅞ <sub>16</sub>	15	6	1.95	2.90	3.90	678

For carefully selected S. A. E. Wrench Sets see pages 125-128.



ARMSTRONG BROS.



TOOL CO., CHICAGO



## AUTOMOTIVE LIGHT "S" WRENCHES

EXTRA LONG, 22½° ANGLE, DOUBLE HEAD

For S. A. E. Standard Nuts and Cap Screws



In stock as listed with openings for S. A. E. Standard Nuts and Cap Screws.

No.	For S. A. E. Standard Nuts and Cap Screws Size, Inches	Openings Milled Inches	Ex- treme Length In.	Weight Each Pounds	Price			No.
					Un- fin- ished	Semi- fin- ished	Fin- ished	
1477-A	¼ & ⅝	⅞ & ½	7⅞	¼	\$0.23	\$0.34	\$0.47	1477-A
1477-D	¼ & ⅜	⅞ & ⅞	7⅞	¼	.23	.34	.47	1477-D
1477-B	⅝ & ⅜	½ & ⅞	7⅞	¼	.23	.34	.47	1477-B
1477	⅝ & ⅞	½ & ⅝	7⅞	¼	.23	.34	.47	1477
1479-B	⅜ & ⅞	⅞ & ⅝	8¼	½	.29	.43	.58	1479-B
1479-D	⅜ & ½	⅞ & ¾	8¼	½	.29	.43	.58	1479-D
1479-E	⅞ & ½	⅝ & ¾	8¼	½	.29	.43	.58	1479-E
1481-A	½ & ⅞	¾ & ⅞	9¼	¾	.38	.55	.72	1481-A
1483-B	⅞ & 1⅞	⅞ & 1	10⅜	1	.50	.70	.90	1483-B
1483-A	⅝ & 1⅞	1⅞ & 1	10⅜	1	.50	.70	.90	1483-A
1485-C	¾ & ⅞	1⅞ & 1¼	12	2	.70	1.00	1.30	1485-C

For carefully selected S. A. E. Wrench Sets see pages 125-128.



## AUTOMOTIVE SINGLE HEAD SOCKET WRENCHES.

FOR S. A. E. STANDARD HEXAGON NUTS AND CAP SCREWS

Furnished With or Without Pin Handle



The end of shank is made hexagon for convenience when using in combination with another wrench. Semi-finished Wrenches complete with pin-handle will always be shipped unless otherwise specified.

In stock as listed with openings for S. A. E. Standard Nuts and Cap Screws.

No.	For S. A. E. Standard Nuts and Cap Screws, Size Inches	Hexagon Openings Short Diam. Inches	Extreme Length, Inches	Diameter of Head, Inches	Weight Each, Pounds	Price Each						No.
						Unfinished		Semi-fin'd		Finished		
						Without Pin-Handle or Hole for Same	With Pin-Handle	Without Pin-Handle or Hole for Same	With Pin-Handle	Without Pin-Handle or Hole for Same	With Pin-Handle	
963-D	1/4	29/64	4 1/2	2 1/32	1/4	\$0.24	\$0.37	\$0.36	\$0.49	\$0.48	\$0.61	963-D
964-A	5/16	33/64	5 1/4	2 5/32	3/8	.26	.39	.39	.52	.52	.65	964-A
965-D	3/8	37/64	5 3/4	1 5/16	1/2	.29	.43	.44	.58	.58	.72	965-D
966-D	7/16	41/64	5 3/4	1 5/16	1/2	.32	.47	.48	.63	.64	.79	966-D
967-D	1/2	49/64	6 1/4	1 5/8	3/4	.36	.53	.54	.71	.72	.89	967-D
969-A	9/16	57/64	7	1 5/8	1 1/8	.46	.64	.69	.87	.92	1.10	969-A
970-S	5/8	61/64	7 3/4	1 1/2	1 1/2	.52	.72	.78	.98	1.04	1.24	970-S
970-D	1 1/16	1 1/64	7 3/4	1 1/2	1 1/2	.52	.72	.78	.98	1.04	1.24	970-D
971-A	3/4	1 5/64	8 1/4	1 11/16	2 1/8	.60	.80	.90	1.10	1.20	1.40	971-A
973-A	7/8	1 9/32	9	1 15/16	3 3/8	.80	1.10	1.20	1.50	1.60	1.90	973-A
975-A	1	1 13/32	9 3/4	2 3/16	4 1/4	1.00	1.35	1.50	1.85	2.00	2.35	975-A
976-A	1 1/8	1 21/32	9 3/4	2 3/16	3 3/8	1.15	1.55	1.72	2.12	2.30	2.70	976-A
977-A	1 1/4	1 27/32	10 1/2	2 1/2	5	1.30	1.75	1.95	2.40	2.60	3.05	977-A
978-A	1 3/8	2 1/32	11 1/4	3	8 1/2	1.60	2.05	2.40	2.85	3.20	3.65	978-A
979-A	1 1/2	2 7/32	11 1/4	3	7 1/2	2.10	2.60	3.15	3.65	4.20	4.70	979-A



ARMSTRONG BROS.



TOOL CO., CHICAGO



## AUTOMOTIVE SOCKET WRENCHES WITH OFF-SET HANDLE

For S. A. E. Standard Hexagon Nuts and Cap Screws



In stock as listed, with openings for S. A. E. nuts and cap screws.

No.	For S. A. E. Standard Nuts and Cap Screws Size Inches	Hexagon Openings Short Diam. Inches	Clearance of Handle from Face of Wrench, Inches	Weight Each, Pounds	Length Inches	Diam. Head Inches	Price Each			No.
							Un- finished	Semi- finished	Fin- ished	
863-D	1/4	29/64	7/8	1 1/8	4 1/2	2 1/32	\$0.24	\$0.36	\$0.48	863-D
864-A	5/16	33/64	1	1 1/4	5 1/2	2 5/32	.26	.39	.52	864-A
865-D	3/8	37/64	1 1/4	3/8	6 1/2	1 5/16	.29	.44	.58	865-D
866-D	7/16	41/64	1 1/4	3/8	6 1/2	1 5/16	.32	.48	.64	866-D
867-D	1/2	49/64	1 1/2	5/8	7 1/4	1 5/32	.36	.54	.72	867-D
869-A	9/16	57/64	1 11/16	7/8	8	1 5/16	.46	.69	.92	869-A
870-S	5/8	61/64	1 13/16	1 1/4	8 1/2	1 1/2	.52	.78	1.04	870-S
870-D	11/16	1 1/64	1 13/16	1 1/4	8 1/2	1 1/2	.52	.78	1.04	870-D
871-A	3/4	1 5/64	2	1 5/8	9 1/4	1 11/16	.60	.90	1.20	871-A
873-A	7/8	1 9/32	2 1/2	2 1/8	10 1/2	1 15/16	.80	1.20	1.60	873-A
875-A	1	1 15/32	2 3/4	3 1/2	12	2 1/16	1.00	1.50	2.00	875-A



## ARMSTRONG DEALERS' WRENCH STOCK AND DISPLAY BOARD

STOCK No. 3

### AUTOMOTIVE WRENCHES

This stock is well adapted to meet the requirements of Auto Supply Dealers, Garages, etc. It includes 132 wrenches, six of each of the most saleable sizes of four popular forms with openings to fit the S. A. E. and A. L. A. M. Nuts, Cap Screws and Set Screws most commonly used on automobiles. It also includes all wrenches needed to make up Armstrong Wrench Sets No. 2, No. 4, No. 5 and No. 5-T which are listed on pages 127-128.

For complete details see page 139.

Dimensions of Board . . .	52 in. x 13½ in.
Net Weight of Board . . .	15 Pounds
" " " Wrenches . . .	80 "
Total Weight . . .	95 "

	Semi-finished	Finished
Price of No. 3 stock as described above and listed on page 139 .	\$63.24	\$90.36

The Board is not sold but is loaned to Dealers under conditions stated on page 114.





ARMSTRONG BROS.



TOOL CO., CHICAGO



## GARAGE AND REPAIRMAN'S WRENCH STOCK AND DISPLAY BOARD

Stock No. 3½

### AUTOMOTIVE WRENCHES

Wrenches well displayed are easily sold and this Board should double the wrench sales in any garage which has carried a wrench stock on shelves or under the counter. The stock comprises 66 Wrenches, three each of the twenty-two Wrenches listed and described on page 139, which cover the most salable Automotive sizes and shapes including all S. A. E. Standard openings for nuts and cap screws from ¼ to ⅞ inch. It also includes all Wrenches needed to make up Armstrong Wrench Sets No. 2, No. 4, No. 5 and No. 5-T, which are listed on pages 127-128.



Net Weight of Board . . . . .	15 Pounds
" " " Wrenches . . . . .	40 "
Total Weight . . . . .	55 "

	Semi-finished	Finished
Price of No. 3½ stock as described above and listed on page 139.	\$31.62	\$45.18

The Board is not sold but is furnished to Dealers under conditions stated on page 114.





ARMSTRONG BROS.



TOOL CO., CHICAGO



## AUTOMOTIVE WRENCH STOCK Nos. 3 AND 3½

Stocks No. 3 and No. 3½ Include All of the Wrenches  
Listed on This Page



AUTOMOTIVE WRENCHES  
15° ANGLE, DOUBLE HEAD

No.	For S. A. E. St'd Nuts and Cap Screws, Size In.	For A. L. A. M. St'd Nuts and Cap Screws, Size In.	For U. S. Standard Nuts Size Bolt Inches	For Hexa. Head Cap Screws Diam. Screw In.	For Square Head Cap Screws Diam. Screw In.	For Set Screws Size Inches	Opening Milled Inches	Extreme Length Inches	Price Each	
									Semi-finished	Finished
21-A		¼	⅛	⅛-3/16	¼	5/16-3/8	5/16-3/8	3½	\$0.17	\$0.26
425-A	¼-5/16	5/16	¼	¼-5/16	5/16-3/8	7/16-1/2	7/16-1/2	5	.25	.38
427-A	5/8-7/16	3/8		3/8-7/16	7/16-1/2	9/16-5/8	9/16-5/8	6	.31	.46
431-B	1/2-9/16	1/2-9/16	1/2	1/2-5/8	5/8-3/4	3/4-7/8	3/4-7/8	8	.45	.68
433-B	5/8-11/16	5/8-11/16		3/4		1	15/16-1	9	.55	.85
437	3/4-7/8	7/8	5/8-3/4	1	1	1¼	1½-1¼	11½	.96	1.40



THIN AUTOMOTIVE WRENCHES  
15° ANGLE, DOUBLE HEAD

623-A			3/16-5/16				13/32-10/32	43/8	.25	.38
1623-C	¼-5/16	5/16	¼	¼-5/16	5/16-3/8	7/16-1/2	7/16-1/2	43/8	.25	.38
1626-C	3/8-7/16	3/8		3/8-7/16	7/16-1/2	9/16-5/8	9/16-5/8	5½	.32	.48
1629-C	1/2-9/16	1/2-9/16	1/2	1/2-5/8	5/8-3/4	3/4-7/8	3/4-7/8	6½	.40	.60
1632-C	5/8-11/16	5/8-11/16		3/4		1	15/16-1	8	.56	.80
1635-B	3/4-7/8	7/8	5/8-3/4	1	1	1¼	1½-1¼	10	.84	1.15



OFF-SET 22½° ANGLE AUTOMOTIVE  
WRENCHES, DOUBLE HEAD

671	¼-5/16	5/16	¼	¼-5/16	5/16-3/8	7/16-1/2	7/16-1/2	4½	.25	.38
672	3/8-7/16	3/8		3/8-7/16	7/16-1/2	9/16-5/8	9/16-5/8	5¾	.31	.46
673	1/2-9/16	1/2		1/2-5/8	5/8-3/4	3/4-7/8	3/4-7/8	7	.40	.60
674	9/16-5/8	9/16-5/8	1/2	5/8	3/4	7/8	7/8-15/16	8¼	.53	.78
675	1½-¾	1½	5/8	¾		1	1-1½	9½	.72	1.05



LIGHT "S" AUTOMOTIVE  
WRENCHES, 22½° ANGLE

1477-A	¼-5/16	5/16	¼	¼-5/16	5/16-3/8	7/16-1/2	7/16-1/2	7½	.34	.47
1479-B	3/8-7/16	3/8		3/8-7/16	7/16-1/2	9/16-5/8	9/16-5/8	8¼	.43	.58
1481-A	1/2-9/16	1/2-9/16	1/2	1/2-5/8	5/8-3/4	3/4-7/8	3/4-7/8	9¼	.55	.72
1483-A	5/8-11/16	5/8-11/16		¾		1	15/16-1	103/8	.70	.90
1485-C	¾-7/8	7/8	5/8-¾	1	1	1¼	1½-1¼	12	1.00	1.30



ARMSTRONG BROS.



TOOL CO., CHICAGO



## "GATORGRIP" WRENCHES

Drop Forged, of High Grade Steel and Oil Tempered



These Wrenches are of uniform design and of superior material and workmanship.

No.	Length Inches	Holds Pipe Inches	Holds Round Iron Inches	Weight Each Pounds	Price Each	No.
0	6	$\frac{1}{8}$ to $\frac{3}{8}$	$\frac{1}{4}$ to $\frac{5}{8}$	$\frac{1}{4}$	\$0.50	0
1	$7\frac{1}{2}$	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{5}{16}$ to $\frac{3}{4}$	$\frac{1}{2}$	.70	1
2	9	$\frac{1}{4}$ to $\frac{3}{4}$	$\frac{7}{16}$ to 1	1	.90	2
$2\frac{1}{2}$	12	$\frac{3}{8}$ to 1	$\frac{5}{8}$ to $1\frac{1}{4}$	$1\frac{3}{4}$	1.35	$2\frac{1}{2}$
3	15	$\frac{1}{2}$ to $1\frac{1}{4}$	$\frac{3}{4}$ to $1\frac{1}{2}$	$2\frac{3}{4}$	2.00	3
$3\frac{1}{2}$	18	$\frac{3}{4}$ to $1\frac{1}{2}$	1 to $1\frac{3}{4}$	4	2.75	$3\frac{1}{2}$
4	21	1 to 2	$1\frac{1}{4}$ to $2\frac{1}{2}$	7	3.75	4
$4\frac{1}{2}$	24	$1\frac{1}{4}$ to $2\frac{1}{2}$	$1\frac{1}{2}$ to 3	9	5.25	$4\frac{1}{2}$
5	27	$1\frac{1}{2}$ to 3	$2\frac{1}{4}$ to $3\frac{1}{2}$	12	7.50	5

## TWIN "GATORGRIP" WRENCHES



No.	Length Inches	Holds Pipe Inches	Holds Round Iron Inches	Weight Each Pounds	Price Each	No.
8	8	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{4}$	$\frac{1}{2}$	\$0.95	8
10	10	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{4}$ to 1	1	1.15	10
12	12	$\frac{1}{4}$ to 1	$\frac{3}{8}$ to $1\frac{1}{4}$	$1\frac{1}{2}$	1.60	12



ARMSTRONG BROS.



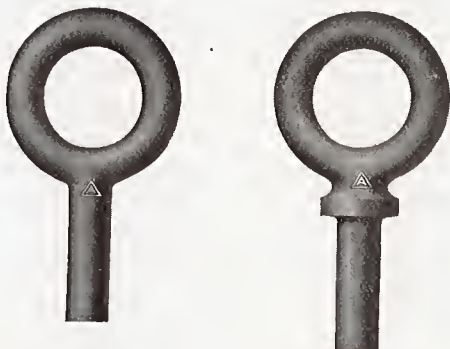
TOOL CO., CHICAGO



## ARMSTRONG DROP FORGED EYE BOLTS

With and Without Shoulder—Blank or Threaded

Armstrong Eye Bolts are of strong, uniform design, drop forged from the best mild steel and are treated to give increased tensile strength.



When ordering specify whether Blank or Threaded Eye-Bolts are wanted. Eye Bolts with U. S. Standard Thread will be shipped unless Blank is specified.

No. With- out Shoulder	Size of Shank Inches		Size of Eye Inches		Capacity Tons Safe Working Load	Weight Each Pounds	Price Each		No. With Shoulder
	Diam.	Length*	Inside Diam.	Outside Diam.			Blank	Threaded U.S. Std.	
3	$\frac{3}{8}$	$1\frac{1}{4}$	1	$1\frac{21}{32}$	$\frac{5}{8}$	$\frac{1}{6}$	\$0.11	\$0.16	23
4	$\frac{7}{16}$	$1\frac{3}{8}$	$1\frac{3}{32}$	$1\frac{27}{32}$	1	$\frac{1}{5}$	.12	.18	24
5	$\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{16}$	$2\frac{1}{16}$	$1\frac{1}{4}$	$\frac{1}{4}$	.14	.21	25
6	$\frac{9}{16}$	$1\frac{5}{8}$	$1\frac{9}{32}$	$2\frac{9}{32}$	$1\frac{1}{2}$	$\frac{3}{5}$	.17	.25	26
7	$\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{3}{8}$	$2\frac{1}{2}$	2	$\frac{5}{8}$	.22	.32	27
8	$\frac{3}{4}$	2	$1\frac{1}{2}$	$2\frac{3}{16}$	3	1	.30	.42	28
9	$\frac{7}{8}$	$2\frac{1}{4}$	$1\frac{11}{16}$	$3\frac{1}{4}$	$3\frac{1}{2}$	$1\frac{1}{8}$	.40	.55	29
10	1	$2\frac{1}{2}$	$1\frac{3}{10}$	$3\frac{9}{16}$	4	2	.55	.74	30
11	$1\frac{1}{8}$	$2\frac{3}{4}$	2	4	5	$2\frac{3}{4}$	.80	1.04	31
12	$1\frac{1}{4}$	3	$2\frac{3}{16}$	$4\frac{7}{16}$	$7\frac{1}{2}$	$3\frac{1}{2}$	1.15	1.45	32
14	$1\frac{1}{2}$	$3\frac{1}{2}$	$2\frac{1}{2}$	$5\frac{3}{16}$	9	6	2.00	2.50	34

\*Eyebolts with shoulder are measured under shoulder.



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**ARMSTRONG  
DROP FORGED  
WRENCHES**